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QUESTION NO: 1

If one side of a square is 5 units, what is the area of the square?

A. 10

B. 15

C. 20

D. 25

E. 30

ANSWER: D

Explanation:

The correct answer is **25**. The area of a square is found by multiplying the length of one side by itself: *area* = *side* × *side*, or $A = s^2$. With a side length of 5 units, the calculation is 5 × 5 = 25. Therefore, the square covers 25 square units. Area measures the amount of two-dimensional space inside a shape, so its unit is expressed in square units rather than simply units. This result follows the standard area formula for squares, which applies because all four sides of a square have equal length and meet at right angles. For further review of area formulas and the meaning of square units, see Khan Academy's area of a square lesson and Math Is Fun's guide to area.

QUESTION NO: 2

In the year 1860, the reputation of Doctor Wybrow as a London physician reached its highest point. It was re ported on good authority that he was in receipt of one of the largest incomes derived from the practice of medicine in modern times.

One afternoon, towards the close of the London season, the doctor had just taken his luncheon after a specially hard morning's work in his consulting-room, and with a formidable list of visits to patients at their own houses to fill up the rest of his day – when the servant announced that a lady wished to speak to him. "Who is she?" the Doctor asked. "A stranger?"

"Yes, sir."

"I see no strangers out of consulting-hours. Tell her what the hours are, and send her away."

"I have told her, sir." "Well?"

"And she won't go."

"Won't go?" The doctor smiled as he repeated the words. He was a humorist in his way; and there was an absurd side to the situation which rather amused him. "Has this obstinate lady given you her name?" he inquired.

"No, sir. She refused to give any name – she said she wouldn't keep you five minutes, and the matter was too important to wait till to-morrow. There she is in the consulting-room; and how to get her out again is more than I know."

Doctor Wybrow considered for a moment. His knowledge of women (professionally speaking) rested on the ripe experience of more than thirty years; he had met with them in all their varieties – especially the variety which knows nothing of the value of time, and never hesitates at sheltering itself behind the privileges of its sex. A glance at his watch informed him that he must soon begin his rounds among the patients who were waiting for him at their own houses. He decided forthwith on taking the only wise course that was open under the circumstances. In other words, he decided on taking to flight.

"Is the carriage at the door?" he asked.

"Yes, sir."

"Very well. Open the house-door for me without making any noise, and leave the lady in undisturbed possession of the consulting-room. When she gets tired of waiting, you know what to tell her. If she asks when I am expected to return, say that I dine at my club, and spend the evening at the theatre. Now then, softly, Thomas! If your shoes creak, I am a lost man."

What may be inferred in the opening paragraph?

A. Physicians didn't get much money in those days.

B. Somehow a reputation makes you a good physician.

C. The physician that made the most money was the best physician.

D. The physician with the best reputation earned the most money.

E. The physician earning the most money would have the best reputation.

ANSWER: E

Explanation:

The physician earning the most money would have the best reputation is the strongest inference because the opening deliberately places two facts side by side: Doctor Wybrow's professional reputation has reached its peak, and he receives one of the largest medical incomes of the period. The passage invites the reader to connect public standing with financial success. It presents his exceptional earnings as evidence accompanying, and likely resulting from, his elevated reputation among patients and the public. This inference does not require assuming a measurable difference in medical skill or clinical qualifications; rather, it identifies the social and professional relationship implied by the author's wording. In context, a physician with a distinguished reputation would attract many patients and command a large income, so Wybrow's earnings reinforce the description of his standing. On reading and inference questions, the best answer should be grounded in the specific details supplied and should express a reasonable conclusion rather than introduce unsupported facts. The College Board's PSAT Reading and Writing overview describes questions that assess comprehension and analysis of passages, and its PSAT preparation resources emphasizes using textual evidence to support answers.

QUESTION NO: 3

Only his truest and most _____ fans remained faithful followers following the news of his steroid use.

A. reticent

B. vocal

C. demonstrative

D. boisterous

E. ardent

ANSWER: E

Explanation:

The correct completion is **ardent**. In this context, the sentence describes fans who continued to support the athlete even after damaging news about steroid use. The word *ardent* means very enthusiastic, devoted, or passionate, so "truest and most ardent fans" clearly conveys that these were his most loyal and deeply committed supporters. It also fits naturally with the noun *fans*, since writers commonly describe committed followers as ardent fans, ardent admirers, or ardent supporters.

The phrase uses parallel superlatives: "truest" identifies the fans' exceptional loyalty, while "most ardent" adds the idea of exceptional intensity and devotion. Together, these words emphasize that only the strongest supporters remained faithful after the controversy. This meaning follows directly from the sentence's contrast between the negative news and the followers who stayed. Merriam-Webster defines *ardent* as characterized by warmth of feeling, typically showing strong enthusiasm or devotion: Merriam-Webster: ardent. Cambridge Dictionary likewise defines it as showing strong feelings of enthusiasm or love: Cambridge Dictionary: ardent.

QUESTION NO: 4

On a number of occasions, Sebastian found the world spinning around him as he suffered from a bout of _____.

A. vertigo

B. infirmity

C. weakness

D. disease

E. spins

ANSWER: A

Explanation:

The correct completion is **vertigo**. Vertigo is a specific symptom or sensation in which a person feels that they are moving or that their surroundings are moving, often described as spinning, whirling, or tilting. The phrase “the world spinning around him” directly signals this meaning, and “a bout of vertigo” is a natural and commonly used expression for an episode that occurs intermittently. The wording also makes grammatical sense: “suffered from a bout of vertigo” identifies a particular occurrence of the condition rather than merely describing a general state of health. In medical usage, vertigo is not simply ordinary dizziness; it is the false sensation of motion, which may be triggered by disorders affecting the inner ear or the brain’s balance-processing systems. Merriam-Webster defines vertigo as a sensation of motion in which the individual or surroundings seem to whirl, while the NHS describes it as feeling as though one’s surroundings are spinning or moving. Those definitions closely match the clue in the sentence. See Merriam-Webster’s definition of vertigo and the NHS overview of vertigo.

QUESTION NO: 5

When one sees the crumbling faces of old monuments, it is tempting to think that even the most enduring accomplishments are mere _____ attainments.

A. risible

B. temporary

C. worthless

D. farcical

E. fruitless

ANSWER: B

Explanation:

The correct completion is “temporary” because the sentence develops a contrast between accomplishments that seem “enduring” and the evidence of their eventual decay. Seeing monuments with crumbling faces can prompt the thought that no human achievement lasts forever. An attainment that is temporary exists or lasts for only a limited period, so “temporary attainments” precisely conveys the idea that even impressive accomplishments may ultimately pass away.

The wording also supports this choice through the phrase “mere _____ attainments.” Here, “mere” minimizes the permanence or lasting significance that people might normally assign to major achievements. The image of deteriorating monuments supplies the context for a time-based description: physical structures once meant to commemorate lasting success are shown as vulnerable to the passage of time. Thus, “temporary” creates a coherent, logical relationship with both “crumbling” and “enduring,” expressing the central idea that apparent permanence may be only temporary.

This kind of context-based vocabulary reasoning—using surrounding words and contrasts to infer meaning—is consistent with the Reading and Writing skills assessed on the SAT Suite. See the College Board’s PSAT Reading and Writing overview and Merriam-Webster’s definition of temporary.

QUESTION NO: 6

The Amazonian wilderness harbors the greatest number of species on this planet and is an irreplaceable resource for present and future generations. Amazonia is crucial for maintaining global climate and genetic resources, and its forest and rivers provide vital sources of food, building materials, pharmaceuticals, and water needed by wildlife and humanity.

The Los Amigos watershed in the state of Madre de Dios, southeastern Peru, is representative of the pristine lowland moist forest once found throughout most of upper Amazonian South America. Threats to tropical forests occur in the form of fishing, hunting, gold mining, timber extraction, impending road construction, and slash-and-burn agriculture.

The Los Amigos watershed, consisting of 1.6 million hectares (3.95 million acres), still offers the increasingly scarce opportunity to study rainforest as it was before the disruptive encroachment of modern human civilization. Because of its relatively pristine condition and the immediate need to justify it as a conservation zone, this area deserves intensive, long-term projects aimed at botanical training, ecotourism, biological inventory, and information synthesis.

On July 24, 2001, the government of Peru and the Amazon Conservation Association signed a contractual agreement creating the first long-term permanently renewable conservation concession. To our knowledge this is the first such agreement to be implemented in the world. The conservation concession protects 340,000 acres of old-growth Amazonian forest in the Los Amigos watershed, which is located in southeastern Peru. This watershed protects the eastern flank of Manu National Park and is part of the lowland forest corridor that links it to BahuajaSonene National Park. The Los Amigos conservation concession will serve as a mechanism for the development of a regional center of excellence in natural forest management and biodiversity science.

Several major projects are being implemented at the Los Amigos Conservation Area. Louise Emmons is initiating studies of mammal diversity and ecology in the Los Amigos area. Other projects involve studies of the diversity of arthropods, amphibians, reptiles, and birds. Robin Foster has conducted botanical studies at Los Amigos, resulting in the labeling of hundreds of plant species along two kilometers of trail in upland and lowland forest. Michael Goulding is leading a fisheries and aquatic ecology program, which aims to document the diversity of fish, their ecologies, and their habitats in the Los Amigos area and the Madre de Dios watershed in general. With support from the Amazon Conservation Association, and in collaboration with U.S. and Peruvian colleagues, the Botany of the Los Amigos project has been initiated.

At Los Amigos, we are attempting to develop a system of preservation, sustainability, and scientific research; a marriage between various disciplines, from human ecology to economic botany, product marketing to forest management. The complexity of the ecosystem will best be understood through a multidisciplinary approach, and improved understanding of the complexity will lead to better management. The future of these forests will depend on sustainable management and development of alternative practices and products that do not require irreversible destruction. The botanical project will provide a foundation of information that is essential to other programs at Los Amigos. By combining botanical studies with fisheries and mammology, we will better understand plant/animal interactions. By providing names, the botanical program will facilitate accurate communication about plants and the animals that use them. Included in this scenario are humans, as we will dedicate time to people-plant interactions in order to learn what plants are used by people in the Los Amigos area, and what plants could potentially be used by people. To be informed, we must develop knowledge.

To develop knowledge, we must collect, organize, and disseminate information. In this sense, botanical information has conservation value. Before we can use plant-based products from the forest, we must know what species are useful and we must know their names. We must be able to identify them, to know where they occur in the forest, how many of them exist, how they are pollinated and when they produce fruit (or other useful products). Aside from understanding the species as they occur locally at Los Amigos, we must have information about their overall distribution in tropical America in order to better understand and manage the distribution, variation, and viability of their genetic diversity. This involves a more complete understanding of the species through studies in the field and herbarium.

When the author says that, “botanical information has conservation value,” (last paragraph) he means that

A. a robust understanding of conservationism is aided by botanical information.

B. conservationists should strive to preserve botanical information.

C. speciation is important for conservation.

D. political discussions about conservation should use botanical nomenclature.

E. new drugs will be developed in the regions protected by conservationism.

ANSWER: A

Explanation:

The statement “a robust understanding of conservationism is aided by botanical information” accurately restates the author’s point. In the final paragraph, the author directly connects knowledge with effective conservation: people must collect, organize, and share botanical information in order to identify useful species, determine where they grow, estimate their abundance, understand pollination and fruiting, and assess their wider distribution and genetic diversity. This knowledge makes it possible to manage forests sustainably rather than destroy them irreversibly. The preceding paragraph reinforces that botanical work provides foundational information for broader conservation efforts, including research on plant-animal and people-plant relationships. Thus, “conservation value” does not mean merely possessing facts about plants; it means that those facts improve informed decision-making about protecting ecosystems and using forest resources responsibly. This interpretation also reflects established conservation practice, in which species inventories, distribution data, and ecological knowledge support biodiversity planning and management. The Convention on Biological Diversity describes identification and monitoring of biodiversity as essential conservation activities, while the U.S. National Park Service explains that inventories provide baseline knowledge for natural-resource stewardship. See the Convention on Biological Diversity, Article 7 and the National Park Service’s Inventory and Monitoring program.

QUESTION NO: 7

Sue receives a base salary of $90 weekly plus a 12% commission on all sales. Sue had $3,000 in sales this week. How much did she make total?

A. $375

B. $450

C. $480

D. $510

E. $525

ANSWER: B

Explanation:

$450 is correct because Sue’s weekly earnings consist of two components: her guaranteed base salary and her commission on sales. First, calculate the commission by finding 12% of $3,000. Converting 12% to a decimal gives 0.12, and multiplying 0.12 by 3,000 gives $360. This is the amount Sue earned from commission during the week. Next, add the $360 commission to her fixed weekly base salary of $90. The total is $90 + $360 = $450. Therefore, Sue made $450 in total for the week. This method follows the standard percent calculation rule: write the percent as a decimal and multiply it by the relevant whole amount, then combine that result with any stated fixed payment. For additional practice with calculating percentages, see Khan Academy’s percentage review. A general explanation of converting percentages to decimals is also available from Math Is Fun.

QUESTION NO: 8

Which set of side lengths CANNOT correspond to a right triangle?

A. 6, 8, 11

B. 3, 4, 5

C. 5, 12, 13

D. 7, 24, 25

E. 8, 15, 17

ANSWER: A

Explanation:

The set **6, 8, 11** cannot be the side lengths of a right triangle. For a right triangle, the longest side is the hypotenuse, and its squared length must equal the sum of the squares of the two shorter sides. With these lengths, the longest side is 11. Squaring the shorter sides and adding gives $6^2 + 8^2 = 36 + 64 = 100$. However, squaring the proposed hypotenuse gives $11^2 = 121$. Since 100 does not equal 121, these three lengths do not satisfy the Pythagorean Theorem and therefore cannot form a right triangle. In fact, 6 and 8 would pair with a hypotenuse of 10, because 10^2 equals 100. The Pythagorean Theorem is the standard relationship used to test whether three positive side lengths can form a right triangle: the sum of the squares of the legs must equal the square of the hypotenuse. See Khan Academy's Pythagorean Theorem review and Encyclopaedia Britannica's overview of the theorem.

QUESTION NO: 9

If the value of x and y in the following fraction are both tripled, how does the value of the fraction change?

XZ

Y

A. increases by half

B. decreases by half

C. triples

D. doubles

E. remains the same

ANSWER: E

Explanation:

The fraction is interpreted as xz/y, meaning that x and z are multiplied in the numerator and y is the denominator. Tripling x replaces it with $3x$, and tripling y replaces it with $3y$. The resulting expression is $(3x)z/(3y)$. Because the numerator and denominator each contain the same nonzero factor, 3, that common factor cancels: $(3xz)/(3y) = xz/y$. Thus, provided the original fraction is defined, so that y is not zero, its numerical value does not change. This illustrates the fundamental fraction property that multiplying both the numerator and denominator by the same nonzero quantity produces an equivalent fraction. The variable z is not changed, but its presence does not affect the cancellation of the matching factors introduced by tripling x and y. See OpenStax's discussion of equivalent fractions and fraction operations at OpenStax Prealgebra and Khan Academy's overview of equivalent fractions at Khan Academy.

QUESTION NO: 10

Which of the following equations has no solution?

A. $6 - |x + 8| = 8$

B. $6 - |x + 6| = 8$

C. $6 - |x + 2| = 8$

D. $6 - |x| = 8$

E. Each of the equations in the other responses has no solution

ANSWER: E

Explanation:

Each of the equations in the other responses has no solution. In every displayed equation, subtracting 6 from both sides gives a statement of the form $-|x + k| = 2$, where k may be 8, 6, 2, or 0. Multiplying both sides by −1 then gives $|x + k| = -2$. An absolute value represents a number's distance from zero, so its value can never be negative for any real value of x.

Thus, no value of x can make any one of these equations true. The number inside the absolute-value bars changes only the horizontal location of the expression; it does not alter the fact that the absolute value itself is nonnegative. Equivalently, because $|x + k| \geq 0$, the left side $6 - |x + k|$ is always at most 6, whereas the equation requires it to equal 8. This confirms that every listed equation lacks a real solution. For additional review of absolute-value properties, see OpenStax Elementary Algebra and Khan Academy: Absolute-value equations.

QUESTION NO: 11

A nurse has to record her temperatures in Celsius but her thermometer reads Fahrenheit. A patient's temperature is 100.7°

F. What is the temperature in °C?

A. 32° C

B. 36.5° C

C. 38.2° C

D. 213.3° C

E. 223.7° C

F. What is the temperature in °C?

ANSWER: C

Explanation:

The temperature is **38.2° C**. To convert a Fahrenheit measurement to Celsius, subtract 32 from the Fahrenheit temperature and then multiply the result by 5/9. For 100.7° F, the calculation is (100.7 − 32) × 5/9. Subtracting gives 68.7, and multiplying by 5/9 gives approximately 38.17. Temperatures in this context are typically reported to the nearest tenth of a degree, so 38.17° C rounds to 38.2° C.

This conversion is especially important in a clinical setting because Celsius is the standard temperature scale used in many medical records and references. A reading near 38° C represents an elevated body temperature, so preserving an appropriate level of precision when converting and recording the measurement supports accurate communication and patient assessment. The Fahrenheit-to-Celsius relationship is defined by the standard temperature-conversion equation described by the National Institute of Standards and Technology. A practical conversion reference is also available from the National Weather Service.

QUESTION NO: 12

Given that two sides of a right triangle measure 2 feet and 3 feet, respectively, with a hypotenuse of x, what is the perimeter of this right triangle (to the nearest tenth)?

A. 9.4 feet

B. 18 feet

C. 8.6 feet

D. 3.6 feet

E. 6.4 feet

ANSWER: C

Explanation:

8.6 feet is correct because the given 2-foot and 3-foot sides are the legs of the right triangle, while x is its hypotenuse. The Pythagorean theorem states that the sum of the squares of the legs equals the square of the hypotenuse: $2^2 + 3^2 = x^2$. This

gives 4 + 9 = 13, so x = √13, which is approximately 3.6055 feet. Perimeter is found by adding all three side lengths: 2 + 3 + √13 ≈ 8.6055 feet. Rounding this total to the nearest tenth gives 8.6 feet. It is important to round after calculating the total, or to retain sufficient precision for √13, so the reported perimeter accurately reflects the requested nearest-tenth value. The relationship used here is the standard Pythagorean theorem for right triangles; see Khan Academy's Pythagorean theorem review and Math Is Fun's explanation of Pythagoras' theorem.

QUESTION NO: 13

Jim leaves his home and walks 10 minutes due west and 5 minutes due south. If Jim could walk a straight line from his current position back to his house, how far, in minutes, is Jim from home?

A. √10

B. √5

C. 5√5

D. 6√6

ANSWER: C

Explanation:

The correct answer is **5√5**. Jim's westward and southward walks are perpendicular, so they form the two legs of a right triangle. Because the question measures each part of the trip in minutes and assumes Jim maintains the same walking speed, the 10-minute and 5-minute travel times can be used as proportional leg lengths. The straight-line route home is the hypotenuse.

Using the Pythagorean theorem, square the two perpendicular travel times and add them: $10^2 + 5^2 = 100 + 25 = 125$. Therefore, the straight-line travel time is √125 minutes. Factoring 125 as 25 × 5 gives √125 = √25 × √5 = 5√5. Thus, at the same constant pace, Jim would be **5√5 minutes** from home by the direct route. This application follows the Pythagorean theorem for a right triangle, in which the square of the hypotenuse equals the sum of the squares of the legs. See Khan Academy's Pythagorean theorem overview and Math Is Fun's explanation of Pythagoras' theorem.

QUESTION NO: 14

Give the solution set of the following inequality:

$$32 < \frac{x-4}{5} < 42$$

A. None of the other responses gives the correct answer.

B. (164, 214)

C. (148, 188)

D. (133, 173)

E. (180, 230)

ANSWER: B

Explanation:

The solution set is **(164, 214)**. The compound inequality shown is 160 < x − 4 < 210, which means that x − 4 must be greater than 160 and less than 210 at the same time. To isolate x without changing either inequality relationship, add 4 to all three parts of the compound inequality. This preserves the order of the values and gives 160 + 4 < x − 4 + 4 < 210 + 4. Simplifying produces 164 < x < 214. Because both inequality signs are strict, neither endpoint is included: x cannot equal 164 or 214. In interval notation, strict endpoints are represented with parentheses, so the appropriate interval is (164, 214). This notation

denotes every real number strictly between 164 and 214, precisely matching the values that satisfy the original compound inequality. For a review of solving compound inequalities by applying the same operation to every part, see Khan Academy's compound inequalities review. For interval-notation conventions, see OpenStax College Algebra.

QUESTION NO: 15

$\sqrt{(8y)} + 18 = 4$

What is y?

A. 2

B. 24.5

C. –2

D. –24.5

E. 14

ANSWER: B

Explanation:

The correct value is **24.5**. Simplifying the equation shown in the image first produces an equation in which the square-root expression is isolated. Squaring both sides then removes the radical and gives **8y = 196**. Dividing both sides by 8 yields **y = 196/8 = 24.5**. This is a standard PSAT algebra process: preserve equality by applying the same operation to both sides, then isolate the variable using inverse operations. When an equation is squared during the solution process, it is also good practice to substitute the resulting value into the original equation to verify that it satisfies the original relationship. Here, 24.5 is the value obtained from the simplified equation and is consistent with the stated work. The PSAT math section assesses solving linear and nonlinear equations, including choosing efficient algebraic steps and interpreting the resulting value. See the College Board overview of PSAT/NMSQT Math and Khan Academy's guidance on solving radical equations.

QUESTION NO: 16

Adapted from "Recent Views as to Direct Action of Light on the Colors of Flowers and Fruits" in Tropical Nature, and Other Essays by Alfred Russel Wallace (1878)

The theory that the brilliant colors of flowers and fruits is due to the direct action of light has been supported by a recent writer by examples taken from the arctic instead of from the tropical flora. In the arctic regions, vegetation is excessively rapid during the short summer, and this is held to be due to the continuous action of light throughout the long summer days. "The further we advance towards the north, the more the leaves of plants increase in size as if to absorb a greater proportion of the solar rays. M. Grisebach says that during a journey in Norway he observed that the majority of deciduous trees had already, at the 60th degree of latitude, larger leaves than in Germany, while M. Ch. Martins has made a similar observation as regards the leguminous plants cultivated in Lapland." The same writer goes on to say that all the seeds of cultivated plants acquire a deeper color the further north they are grown, white haricots becoming brown or black, and white wheat becoming brown, while the green color of all vegetation becomes more intense. The flowers also are similarly changed: those which are white or yellow in central Europe becoming red or orange in Norway. This is what occurs in the Alpine flora, and the cause is said to be the same in both – the greater intensity of the sunlight. In the one the light is more persistent, in the other more intense because it traverses a less thickness of atmosphere.

Admitting the facts as above stated to be in themselves correct, they do not by any means establish the theory founded on them; and it is curious that Grisebach, who has been quoted by this writer for the fact of the increased size of the foliage, gives a totally different explanation of the more vivid colors of Arctic flowers. He says, "We see flowers become larger and more richly colored in proportion as, by the increasing length of winter, insects become rarer, and their cooperation in the act of fecundation is exposed to more uncertain chances." (Vegetation du Globe, col. i. p. 61 – French translation.) This is the theory here adopted to explain the colors of Alpine plants, and we believe there are many facts that will show it to be the preferable one. The statement that the white and yellow flowers of temperate Europe become red or golden in the Arctic regions must we think be incorrect. By roughly tabulating the colors of the plants given by Sir Joseph Hooker as permanently Arctic, we find among fifty species with more or less conspicuous flowers, twenty-five white, twelve yellow, eight purple or

blue, three lilac, and two red or pink; showing a very similar proportion of white and yellow flowers to what obtains further south.

The purpose of this passage is _____.

A. to attack a scientist for his faulty methodology

B. to propose a definitive experiment

C. to describe new research

D. to discuss several interpretations of a phenomenon

E. to cast doubt on a widely accepted scientific law

ANSWER: D

Explanation:

The passage's central purpose is **to discuss several interpretations of a phenomenon**: the striking colors of Arctic and Alpine flowers and fruits. It first presents an unnamed writer's explanation that unusually persistent or intense sunlight directly produces deeper plant colors. The author then carefully evaluates that account rather than simply reporting it. He introduces Grisebach's contrasting explanation, which connects vivid flower colors with the reduced availability of insects for pollination in regions with long winters. The author explicitly adopts this second interpretation as preferable and supports his evaluation with a rough tabulation of Arctic flower colors drawn from Hooker's records. Thus, the passage is organized around competing explanations and the evidence relevant to choosing between them. This approach is consistent with Alfred Russel Wallace's scientific writing, which frequently compared proposed natural explanations against observations before reaching a conclusion. Wallace's works and biographical context are available through Project Gutenberg's Alfred Russel Wallace collection, while the role of insects in plant reproduction is summarized by Encyclopaedia Britannica's overview of pollination.

QUESTION NO: 17

He was a uncommon small man, he really was. Certainly not so small as he was made out to be, but where IS your Dwarf as is? He was a most uncommon small man, with a most uncommon large Ed; and what he had inside that Ed, nobody ever known but himself: even supposing himself to have ever took stock of it, which it would have been a stiff job for even him to do.

The kindest little man as never grown! Spirited, but not proud. When he travelled with the Spotted Baby though he knew himself to be a natural Dwarf, and knew the Baby's spots to be put upon him artificial, he nursed that Baby like a mother. You never heard him give a ill-name to a Giant. He DID allow himself to break out into strong language respecting the Fat Lady from Norfolk; but that was an affair of the 'art; and when a man's 'art has been trifled with by a lady, and the preference give to a Indian, he isn't master of his actions.

He was always in love, of course; every human natural phenomenon is. And he was always in love with a large woman; I never known the Dwarf as could be got to love a small one. Which helps to keep 'em the Curiosities they are.

One single idea he had in that Ed of his, which must have meant something, or it wouldn't have been there. It was always his opinion that he was entitled to property. He never would put his name to anything. He had been taught to write, by the young man without arms, who got his living with his toes (quite a writing master HE was, and taught scores in the line), but Chops would have starved to death, afore he'd have gained a bit of bread by putting his hand to a paper. This is the more curious to bear in mind, because HE had no property, nor hope of property, except his house and a sarsen. When I say his house, I mean the box, painted and got up outside like a regular six-roomer, that he used to creep into, with a diamond ring (or quite as good to look at) on his forefinger, and ring a little bell out of what the Public believed to be the Drawing-room winder. And when I say a sarsen, I mean a Chaney sarsen in which he made a collection for himself at the end of every Entertainment. His cue for that, he took from me: "Ladies and gentlemen, the little man will now walk three times round the Cairawan, and retire behind the curtain." When he said anything important, in private life, he mostly wound it up with this form of words, and they was generally the last thing he said to me at night afore he went to bed.

He had what I consider a fine mind – a poetic mind. His ideas respecting his property never come upon him so strong as when he sat upon a barrel-organ and had the handle turned. Arter the vibration had run through him a little time, he would screech out, "Toby, I feel my property coming – grind away! I'm counting my guineas by thousands, Toby – grind away! Toby, I shall be a man of fortune! I feel the Mint a jingling in me, Toby, and I'm swelling out into the Bank of England!" Such

is the influence of music on a poetic mind. Not that he was partial to any other music but a barrel-organ; on the contrary, hated it.

He had a kind of a everlasting grudge aging the Public: which is a thing you may notice in many phenomenon that get their living out of it. What riled him most in the nature of his occupation was, that it kept him out of Society. He was continually saying, “Toby, my ambition is, to go into Society. The curse of my position towards the Public is, that it keeps me out of Society. This doesn’t signify to a low beast of a Indian; he isn’t formed for Society. This doesn’t signify to a Spotted Baby; HE isn’t formed for Society. I am.”

Which selection best interprets “Chops would have starved to death, afore he’d have gained a bit of bread by putting his hand to a paper” 4th paragraph

A. He would starve before he would accept charity from anyone.

B. He would starve before he would agree to anything.

C. He would starve before signing a performance contract as a phenomenon.

D. He would starve before borrowing money to buy bread.

E. He would starve before wrapping paper around food showing distrust in the preparation of same.

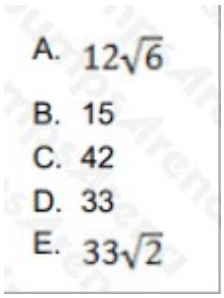
ANSWER: C

Explanation:

“He would starve before signing a performance contract as a phenomenon” best captures the meaning because the sentence immediately follows the statement that Chops “never would put his name to anything.” In this context, “putting his hand to a paper” is an idiom meaning signing a written document. Although Chops has been taught to write, he refuses to use that skill to obtain even enough money for food. The narration presents this refusal as connected to his intense belief that he is entitled to property and personal status. As a performer exhibited to the public as a “phenomenon,” signing a paper would most naturally mean accepting the formal terms of that work, such as an engagement or performance agreement. His refusal is therefore not about literally touching paper, obtaining bread, or a general unwillingness to agree with anyone; it specifically describes his determination not to sign away or formally bind himself in connection with his employment. The wording “would have starved to death” is deliberate hyperbole, emphasizing how absolute that principle is for him. The passage is from Charles Dickens’s “Dr. Marigold,” available through Project Gutenberg; background on Dickens and his writings is available from the Charles Dickens Museum.

QUESTION NO: 18

A right triangle has sides of 36 and 39(hypotenuse). Find the length of the third side



A. Option A

B. 15

C. Option C

D. Option D

E. Option E

ANSWER: B

Explanation:

The length of the third side is 15. In a right triangle, the Pythagorean theorem states that the sum of the squares of the two legs equals the square of the hypotenuse: $a^2 + b^2 = c^2$. Here, 39 is explicitly identified as the hypotenuse, so it must be used for c, and 36 is one leg. Let the unknown leg be x. Substituting gives $x^2 + 36^2 = 39^2$. Squaring the known lengths produces $x^2 + 1296 = 1521$. Subtracting 1296 from both sides gives $x^2 = 225$. The positive square root of 225 is 15, which is the only meaningful result because a side length cannot be negative. This also forms the well-known 5-12-13 right-triangle relationship multiplied by 3: 15, 36, and 39. For further practice with applying the theorem to right triangles, see Khan Academy's Pythagorean theorem lesson and the Pythagorean theorem reference from Maths Is Fun.

QUESTION NO: 19

"The Cell Cycle" by Joseph Ritchie (2014)

The process by which cells divide and multiply is known as the cell cycle. This cycle consists of two main phases: interphase and mitosis. Each phase consists of a series of clearly defined and observable steps. At the conclusion of the cycle, each parent cell produces two genetically identical daughter cells that may also replicate by proceeding through the cell cycle.

Roughly ninety percent of the cell cycle is spent in interphase. Interphase is comprised of three main steps: the first gap phase, the synthesis phase (also called "S phase"), and the second gap phase. The initial gap phase is a period of cellular preparation in which the cell increases in size and readies itself for DNA synthesis. In the synthesis phase, or S phase, DNA replication occurs, so that when the cell divides, each daughter cell will have the DNA necessary to function properly. In the second gap phase, the cell grows in size and prepares for cellular division in the mitotic phase. At the end of each gap phase, the cell has to pass a regulatory checkpoint to ensure that nothing is going wrong. If anything has gone wrong, the checkpoints stop the cell from proceeding through the cell cycle any further.

The next part of the cell cycle is mitosis. Mitosis is a form of cell division and is broken down into five distinct phases. During prophase, the genetic material contained in the cell's chromatin condenses into distinct chromosomes. Prometaphase is marked by the breakdown of the cell's nuclear envelope and the formation of centrosomes at the poles of the cell. During metaphase, the cell's chromosomes are moved to the center of the cell. A checkpoint ensures that the chromosomes are properly aligned on the center and halts the cell cycle if any errors have occurred. In anaphase, chromosomes break apart at their center, or centromere, and sister chromatids move to opposite ends of the cell. Lastly, telophase and cytokinesis occur as nuclear membranes form to physically divide the cell into two new daughter cells. Chromosomes also unwind into loose chromatin during this part of mitosis. Cytokinesis is defined as the division of the each cell's cytoplasm and organelles. At the conclusion of the cell cycle, two genetically identical daughter cells have formed.

The cell cycle operates by a series of checkpoints and external cues. This system of checks enables the cell to enter a state of dormancy known as the gap zero phase when conditions or other factors inhibit the cell cycle. Conversely, unregulated and uncontrolled cellular division can occur under certain circumstances. A cell in a state of uncontrolled division is known to be cancerous. Lastly, cells have the ability to mediate their own death by way of apoptosis if certain genetic or physical abnormalities exist. The cell cycle is a complex process that enables cells to replicate and proliferate under a stringent set of checks and balances that produce healthy and viable daughter cells that are each able to perform the process in the future.

Where does DNA synthesis and replication occur in the cell cycle?

A. Prophase

B. Telophase

C. S phase

D. Metaphase

ANSWER: C

Explanation:

S phase is correct because it is the synthesis portion of interphase, the stage in which a cell duplicates its DNA before it divides. DNA replication produces a complete copy of the cell's genetic material, creating paired sister chromatids for every

chromosome. This preparation is essential: when the cell later separates its duplicated chromosomes during mitosis and completes cytokinesis, each resulting daughter cell can receive a full, equivalent set of genetic instructions.

The passage explicitly identifies the synthesis phase as the point at which DNA replication occurs and connects that replication to the ability of each daughter cell to function properly after division. More broadly, standard cell-cycle biology places DNA replication in interphase, after the first gap phase and before the second gap phase. The cell then uses the later stages of the cycle to organize and distribute the already-replicated genetic material. Checkpoints surrounding these stages help ensure replication has been completed accurately before division proceeds. For further background, see the National Human Genome Research Institute's cell-cycle overview and OpenStax Biology 2e on the cell cycle.

QUESTION NO: 20

His _____ behavior toward her caused a considerable riff in the organization, partially because of the size of the company and partially because he was a married man with children.

A. untoward

B. snide

C. mysterious

D. periodic

E. obsequious

ANSWER: A

Explanation:

untoward is correct because it means improper, inappropriate, or unsuitable for the circumstances. The sentence indicates that the man's conduct toward a particular woman created a serious organizational dispute and emphasizes that he was married with children. Those contextual details signal behavior regarded as socially or professionally improper, making "untoward behavior" the natural and precise expression.

The adjective also fits grammatically and idiomatically before "behavior toward her." In workplace and interpersonal contexts, "untoward behavior" commonly describes conduct that crosses accepted boundaries or causes concern without requiring the sentence to specify the exact actions. The resulting conflict within the organization is therefore consistent with the term's meaning: conduct that is objectionable or inappropriate and has harmful consequences for those involved. Merriam-Webster defines untoward as inappropriate or unsuitable, while Cambridge Dictionary similarly describes it as unpleasant or unexpected and inconvenient: Cambridge Dictionary: untoward. In this sentence, the marital-status detail supplies the social context that makes the behavior specifically inappropriate.

QUESTION NO: 21

If $3x = 6x - 15$ then $x + 8 =$

A. 5

B. 10

C. 11

D. 12

E. 13

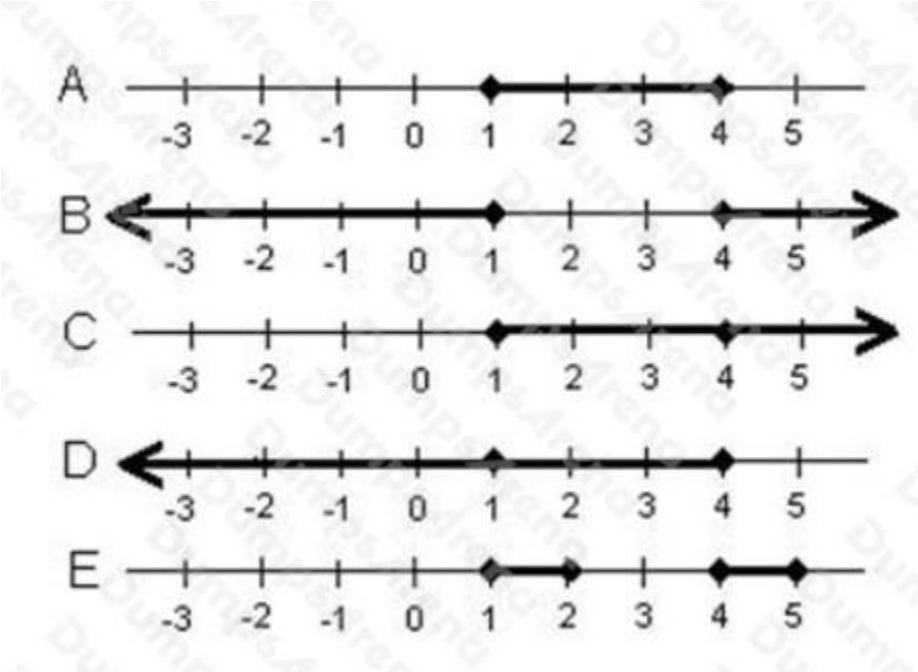
ANSWER: E

Explanation:

The correct answer is **13**. Start with the equation 3x = 6x − 15. Subtracting 3x from both sides places all variable terms on one side, giving 0 = 3x − 15. Adding 15 to both sides gives 15 = 3x. Dividing both sides by 3 shows that x = 5. The question then asks for the value of x + 8, rather than x alone. Substituting 5 for x produces 5 + 8, which equals 13. This follows the standard principle of solving linear equations: perform the same inverse operation on both sides to preserve equality, then substitute the resulting value into the requested expression. For additional review of solving one-variable linear equations, see Khan Academy's linear-equations lesson and the OpenStax guide to solving linear equations.

QUESTION NO: 22

Which of the following is a correct graph of x > 1, x < 4?



A. Line A

B. Line B

C. Line C

D. Line D

E. Line E

ANSWER: A

Explanation:

Line A is correct because the two conditions must be true at the same time: the value of *x* must be greater than 1 and less than 4. Combining these inequalities gives 1 < x < 4, which represents all numbers strictly between 1 and 4. On a number-line graph, this is shown by shading, drawing, or otherwise highlighting only the segment between 1 and 4. Because neither endpoint is included, the points at 1 and 4 must be open circles rather than filled circles. Values such as 2, 2.5, and 3.99 belong to the solution set, while 1 and 4 do not. This is an intersection of the two inequalities: one condition limits the values to those to the right of 1, and the other limits them to those to the left of 4. The overlap is therefore the interior interval from 1 to 4. For guidance on graphing strict inequalities with open endpoints, see OpenStax Prealgebra: Solve Linear Inequalities and Khan Academy: Graphing inequalities.

QUESTION NO: 23

A sequence of numbers is 2, 5, 8, 11. Assuming it follows the same pattern, what would be the value of the 20th number?

A. 56

B. 50

C. 59

D. 61

E. 55

ANSWER: C

Explanation:

The correct answer is **59**. The displayed terms increase by a constant amount: from 2 to 5, from 5 to 8, and from 8 to 11, the increase is 3 each time. This establishes an arithmetic sequence with first term 2 and common difference 3. For an arithmetic sequence, the term at position n can be found using the formula $a_n = a_1 + (n - 1)d$, where a_1 is the first term and d is the common difference. Substituting the known values gives $a_{20} = 2 + (20 - 1)(3)$. There are 19 equal increases of 3 between the first term and the twentieth term, so this becomes 2 + 57, which equals 59. This method is preferable to listing every term because it directly identifies the requested position while preserving the sequence's constant-rate pattern. For further guidance on arithmetic sequences and their explicit formulas, see Khan Academy and OpenStax.

QUESTION NO: 24

The main purpose of this story is to appeal to the reader's interest in a subject which has been the theme of some of the greatest writers, living and dead – but which has never been, and can never be, exhausted, because it is a subject eternally interesting to all mankind. Here is one more book that depicts the struggle of a human creature, under those opposing influences of Good and Evil, which we have all felt, which we have all known.

It has been my aim to make the character of "Magdalen," which personifies this struggle, a pathetic character even in its perversity and its error; and I have tried hard to attain this result by the least obtrusive and the least artificial of all means – by a resolute adherence throughout to the truth as it is in Nature. This design was no easy one to accomplish; and it has been a great encouragement to me (during the publication of my story in its periodical form) to know, on the authority of many readers, that the object which I had proposed to myself, I might, in some degree, consider as an object achieved.

Round the central figure in the narrative other characters will be found grouped, in sharp contrast – contrast, for the most part, in which I have endeavored to make the element of humor mainly predominant. I have sought to impart this relief to the more serious passages in the book, not only because I believe myself to be justified in doing so by the laws of Art – but because experience has taught me (what the experience of my readers will doubtless confirm) that there is no such moral phenomenon as unmixed tragedy to be found in the world around us. Look where we may, the dark threads and the light cross each other perpetually in the texture of human life.

Which selection best identifies the device used in the phrase "the dark threads and the light cross each other perpetually in the texture of human life" at the end of 3rd paragraph?

A. alliteration

B. allusion

C. allegory

D. simile

E. metaphor

ANSWER: E

Explanation:

"metaphor

” is correct because the writer describes human life as though it were a woven fabric. The “dark threads” stand for painful, morally troubling, or tragic experiences, while the “light” represents humor, goodness, happiness, and relief. By saying that these elements “cross each other perpetually in the texture of human life,” the passage presents them as interwoven parts of lived experience rather than as literal threads and light. This image develops the preceding claim that real life does not contain “unmixed tragedy”: sorrow and joy continually appear together. A metaphor makes an implied comparison without using comparison signals such as “like” or “as.” Here, the comparison between life and a textile’s texture allows the author to express a complex idea vividly and economically. The phrase also reinforces the passage’s central concern with the coexistence of Good and Evil and with the author’s intent to balance serious events with humor. For further guidance on figurative language and metaphor, see Literary Devices: Metaphor and Purdue OWL: Definitions and Examples.

QUESTION NO: 25

Adapted from The Extermination of the American Bison by William T. Hornaday (1889)

We come now to a history which I would gladly leave unwritten. Its record is a disgrace to the American people in general, and the Territorial, State, and General Government in particular. It will cause succeeding generations to regard us as being possessed of the leading characteristics of the beast of prey – cruelty and greed. We will be likened to the blood-thirsty tiger of the Indian jungle, who slaughters a dozen bullocks at once when he knows he can eat only one.

The men who killed buffaloes for their tongues and those who shot them from the railway trains for sport were murderers. In no way does civilized man so quickly revert to his former state as when he is alone with the beasts of the field. Give him a gun and something which he may kill without getting himself in trouble, and, presto! He is instantly a killer again, finding exquisite delight in bloodshed, slaughter, and death, if not for gain, then solely for the joy and happiness of it. There is no kind of warfare against game animals too unfair, too disreputable, or too mean for white men to engage in if they can only do so with safety to their own precious carcasses. They will shoot buffalo and antelope from running railway trains, drive deer into water with hounds and cut their throats in cold blood, kill does with fawns a week old, kill fawns by the score for their spotted skins, slaughter deer, moose, and caribou in the snow at a pitiful disadvantage, just as the wolves do; exterminate the wild ducks on the whole Atlantic seaboard with punt guns for the metropolitan markets; kill off the Rocky Mountain goats for hides worth only 50 cents apiece, destroy wagon loads of trout with dynamite, and so on to the end of the chapter.

Perhaps the most gigantic task ever undertaken on this continent in the line of game-slaughter was the extermination of the bison in the great pasture region by the hide-hunters. Probably the brilliant rapidity and success with which that lofty undertaking was accomplished was a matter of surprise even to those who participated in it. The story of the slaughter is by no means a long one.

The period of systematic slaughter of the bison naturally begins with the first organized efforts in that direction, in a business-like, wholesale way. Although the species had been steadily driven westward for a hundred years by the advancing settlements, and had during all that time been hunted for the meat and robes it yielded, its extermination did not begin in earnest until 1820, or thereabouts. As before stated, various persons had previous to that time made buffalo killing a business in order to sell their skins, but such instances were very exceptional. By that time the bison was totally extinct in all the region lying east of the Mississippi River except a portion of Wisconsin, where it survived until about 1830. In 1820 the first organized buffalo hunting expedition on a grand scale was made from the Red River settlement, Manitoba, in which five hundred and forty carts proceeded to the range. Previous to that time the buffaloes were found near enough to the settlements around Fort Garry that every settler could hunt independently; but as the herds were driven farther and farther away, it required an organized effort and a long journey to reach them.

The American Fur Company established trading posts along the Missouri River, one at the mouth of the Teton River and another at the mouth of the Yellowstone. In 1826 a post was established at the eastern base of the Rocky Mountains, at the head of the Arkansas River, and in 1832 another was located in a corresponding situation at the head of the South Fork of the Platte, close to where Denver now stands. Both the latter were on what was then the western border of the buffalo range. Elsewhere throughout the buffalo country there were numerous other posts, always situated as near as possible to the best hunting ground, and at the same time where they would be most accessible to the hunters, both white and Native American.

Which of these most accurately restates the meaning of “In no way does civilized man so quickly revert to his former state as when he is alone with the beasts of the field”?

A. Humans quickly display uncivilized bloodlust when alone with wild creatures.

B. We are more eager to hunt animals when outside the confines of cities.

C. With the ability to hunt many more animals than he needs to survive, man is much more uncivilized now than he ever was in the past.

D. We are not like our ancestors at all when we hunt.

E. Men of agriculture are no more civilized than hunters.

ANSWER: A

Explanation:

“Humans quickly display uncivilized bloodlust when alone with wild creatures” most accurately captures the author’s meaning. The phrase “revert to his former state” means that a person who is ordinarily considered civilized rapidly falls back into a primitive, violent, and predatory way of behaving. The author is not describing a literal physical transformation; he is condemning a loss of moral restraint. In the immediately surrounding sentences, he says that when a man has a gun and an animal he can kill safely, he becomes “a killer again” and takes pleasure in “bloodshed, slaughter, and death.” Thus, being “alone with the beasts of the field” means being in a setting without the social limits that might restrain cruel behavior toward wild animals. “Uncivilized bloodlust” concisely conveys both the regression from civilized conduct and the author’s harsh accusation that such hunters enjoy needless killing. This interpretation also matches Hornaday’s broader argument that the commercial and recreational killing of bison reflected cruelty and greed rather than necessity. Historical context on the near-destruction of bison is available from the National Park Service and Hornaday’s original work is preserved at the Internet Archive.

QUESTION NO: 26

Mathew ascended three flights of stairs – passed half-way down a long arched gallery – and knocked at another old-fashioned oak door. This time the signal was answered. A low, clear, sweet voice, inside the room, inquired who was waiting without? In a few hasty words Mathew told his errand. Before he had done speaking the door was quietly and quickly opened, and Sarah Leeson confronted him on the threshold, with her candle in her hand.

Not tall, not handsome, not in her first youth – shy and irresolute in manner – simple in dress to the utmost limits of plainness – the lady’s-maid, in spite of all these disadvantages, was a woman whom it was impossible to look at without a feeling of curiosity, if not of interest. Few men, at first sight of her, could have resisted the desire to find out who she was; few would have been satisfied with receiving for answer, She is Mrs. Treverton’s maid; few would have refrained from the attempt to extract some secret information for themselves from her face and manner; and none, not even the most patient and practiced of observers, could have succeeded in discovering more than that she must have passed through the ordeal of some great suffering at some former period of her life. Much in her manner, and more in her face, said plainly and sadly: I am the wreck of something that you might once have liked to see; a wreck that can never be repaired – that must drift on through life unnoticed, unguided, unpitied – drift till the fatal shore is touched, and the waves of Time have swallowed up these broken relics of me forever.

This was the story that was told in Sarah Leeson’s face – this, and no more. No two men interpreting that story for themselves, would probably have agreed on the nature of the suffering which this woman had undergone. It was hard to say, at the outset, whether the past pain that had set its ineffaceable mark on her had been pain of the body or pain of the mind. But whatever the nature of the affliction she had suffered, the traces it had left were deeply and strikingly visible in every part of her face.

Her cheeks had lost their roundness and their natural color; her lips, singularly flexible in movement and delicate in form, had faded to an unhealthy paleness; her eyes, large and black and overshadowed by unusually thick lashes, had contracted an anxious startled look, which never left them and which piteously expressed the painful acuteness of her sensibility, the inherent timidity of her disposition. So far, the marks which sorrow or sickness had set on her were the marks common to most victims of mental or physical suffering. The one extraordinary personal deterioration which she had undergone consisted in the unnatural change that had passed over the color of her hair.

It was as thick and soft, it grew as gracefully, as the hair of a young girl; but it was as gray as the hair of an old woman. It seemed to contradict, in the most startling manner, every personal assertion of youth that still existed in her face. With all its haggardness and paleness, no one could have looked at it and supposed for a moment that it was the face of an elderly woman. Wan as they might be, there was not a wrinkle in her cheeks. Her eyes, viewed apart from their prevailing expression of uneasiness and timidity, still preserved that bright, clear moisture which is never seen in the eyes of the old. The skin about her temples was as delicately smooth as the skin of a child. These and other physical signs which never mislead, showed that she was still, as to years, in the very prime of her life.

Sickly and sorrow-stricken as she was, she looked, from the eyes downward, a woman who had barely reached thirty years of age. From the eyes upward, the effect of her abundant gray hair, seen in connection with her face, was not simply incongruous – it was absolutely startling; so startling as to make it no paradox to say that she would have looked most natural, most like herself if her hair had been dyed. In her case, Art would have seemed to be the truth, because Nature looked like falsehood.

What shock had stricken her hair, in the very maturity of its luxuriance, with the hue of an unnatural old age? Was it a serious illness, or a dreadful grief that had turned her gray in the prime of her womanhood? That question had often been agitated among her fellow-servants, who were all struck by the peculiarities of her personal appearance, and rendered a little suspicious of her, as well, by an inveterate habit that she had of talking to herself. Inquire as they might, however, their curiosity was always baffled. Nothing more could be discovered than that Sarah Leeson was, in the common phrase, touchy on the subject of her gray hair and her habit of talking to herself, and that Sarah Leeson's mistress had long since forbidden every one, from her husband downward, to ruffle her maid's tranquility by inquisitive questions.

What can the reader infer about the setting from the limited information in paragraph one?

A. The house is in the country.

B. The house is located in a city.

C. It is a rather small house with ornate architecture.

D. It is a large, old house.

E. It is a large house with up-to-date modifications.

ANSWER: D

Explanation:

"It is a large, old house." is the best-supported inference because the first paragraph supplies details about both the building's scale and its age or traditional character. Mathew must climb three flights of stairs and then travel along a long, arched gallery before reaching Sarah Leeson's door. Those interior features suggest a residence with substantial size and an extended layout, rather than a compact home. The phrase "another old-fashioned oak door" directly conveys an old-fashioned architectural style or atmosphere. In addition, Sarah holds a candle, a detail that reinforces the historical, nonmodern feel of the scene. The passage does not identify a geographic location, so the setting cannot reliably be placed in either the country or a city. Likewise, the evidence describes an old-fashioned environment rather than one with contemporary updates. This answer follows the reading-comprehension practice of making an inference that is firmly grounded in specific textual details, without adding unsupported assumptions. The College Board explains that SAT Suite reading questions ask students to use information and ideas in passages, including drawing supported conclusions; see College Board: SAT Reading and Writing. For guidance on distinguishing textual evidence from speculation, see Purdue OWL: Critical Reading.

QUESTION NO: 27

Adapted from Nicholas Nickleby by Charles Dickens (1839) There was a great bustle in Bishopsgate Street Within, as they drew up, and (it being a windy day) half-a-dozen men were tacking across the road under a press of paper, bearing gigantic announcements that a Public Meeting would be held at one o'clock precisely, to take into consideration the propriety of petitioning Parliament in favour of the United Metropolitan Improved Hot Muffin and Crumpet Baking and Punctual Delivery Company, capital five millions, in five hundred thousand shares of ten pounds each; which sums were duly set forth in fat black figures of considerable size. Mr. Bonney elbowed his way briskly upstairs, receiving in his progress many low bows from the waiters who stood on the landings to show the way; and, followed by Mr. Nickleby, dived into a suite of apartments behind the great public room: in the second of which was a business-looking table, and several business-looking people. "Hear!" cried a gentleman with a double chin, as Mr. Bonney presented himself. "Chair, gentlemen, chair!" The new-comers were received with universal approbation, and Mr. Bonney bustled up to the top of the table, took off his hat, ran his fingers through his hair, and knocked a hackney-coachman's knock on the table with a little hammer: whereat several gentlemen cried "Hear!" and nodded slightly to each other, as much as to say what spirited conduct that was. Just at this moment, a waiter, feverish with agitation, tore into the room, and throwing the door open with a crash, shouted "Sir Matthew Pupker!" The committee stood up and clapped their hands for joy, and while they were clapping them, in came Sir Matthew Pupker, attended by two live members of Parliament, one Irish and one Scotch, all smiling and bowing, and looking so pleasant that it seemed a perfect marvel how any man could have the heart to vote against them. Sir Matthew Pupker especially, who had a little round head with a flaxen wig on the top of it, fell into such a paroxysm of bows, that the wig threatened to be jerked off, every instant. When these symptoms had in some degree subsided, the gentlemen who were on speaking terms with Sir Matthew Pupker, or the two other members, crowded round them in three little groups, near one or other of which the gentlemen who were NOT on speaking terms with Sir Matthew Pupker or the two other members, stood lingering, and smiling, and rubbing their hands, in the desperate hope of something turning up which might bring them into notice. All this time, Sir Matthew Pupker and the two other members were relating to their separate circles what the intentions of government were, about taking up the bill; with a full account of what the government had said in a whisper the last time they dined with it, and how the government had been observed to wink when it said so; from which premises they were at no loss

to draw the conclusion, that if the government had one object more at heart than another, that one object was the welfare and advantage of the United Metropolitan Improved Hot Muffin and Crumpet Baking and Punctual Delivery Company. Meanwhile, and pending the arrangement of the proceedings, and a fair division of the speechifying, the public in the large room were eyeing, by turns, the empty platform, and the ladies in the Music Gallery. In these amusements the greater portion of them had been occupied for a couple of hours before, and as the most agreeable diversions pall upon the taste on a too protracted enjoyment of them, the sterner spirits now began to hammer the floor with their boot-heels, and to express their dissatisfaction by various hoots and cries. These vocal exertions, emanating from the people who had been there longest, naturally proceeded from those who were nearest to the platform and furthest from the policemen in attendance, who having no great mind to fight their way through the crowd, but entertaining nevertheless a praiseworthy desire to do something to quell the disturbance, immediately began to drag forth, by the coat tails and collars, all the quiet people near the door; at the same time dealing out various smart and tingling blows with their truncheons, after the manner of that ingenious actor, Mr. Punch: whose brilliant example, both in the fashion of his weapons and their use, this branch of the executive occasionally follows. Several very exciting skirmishes were in progress, when a loud shout attracted the attention even of the belligerents, and then there poured on to the platform, from a door at the side, a long line of gentlemen with their hats off, all looking behind them, and uttering vociferous cheers; the cause whereof was sufficiently explained when Sir Matthew Pupker and the two other real members of Parliament came to the front, amidst deafening shouts, and testified to each other in dumb motions that they had never seen such a glorious sight as that, in the whole course of their public career.

Which of the following statements about the committee is supported by the passage?

A. They are, in part, self-centred.

B. They wear wigs.

C. They are all in favor of the members of Parliament.

D. They are anarchists.

E. They form three groups in the room when the members of parliament arrive.

ANSWER: A

Explanation:

They are, in part, self-centred. is supported directly by the narrator’s description of committee members who are not personally acquainted with Sir Matthew Pupker or either member of Parliament. Rather than participating meaningfully in the discussion, these men remain nearby, smiling and rubbing their hands while hoping that “something” will occur to bring them “into notice.” That phrasing identifies personal recognition and social advancement as their immediate concern. The passage does not merely show that the gathering is enthusiastic about the company’s proposal; it humorously emphasizes the performative behavior, status-seeking, and self-importance surrounding the political meeting. The reference to a “desperate hope” makes the motivation especially clear: at least some committee members want an opportunity to attract attention from prominent public figures. This characterization fits Dickens’s satirical presentation of the meeting, in which public business is mixed with vanity, networking, and theatrical displays of importance. The wording “in part” is appropriately limited because the passage establishes this trait for some members, not necessarily every person on the committee. The source passage appears in Project Gutenberg’s text of *Nicholas Nickleby*; additional background on Dickens and his social satire is available from Encyclopaedia Britannica.

QUESTION NO: 28

Adapted from Essays on Early Ornithology and Kindred Subjects by James R. McClymont (1920)

The voyagers named it the Angra de Santa Elena, and it may have been the bay which is now known as St. Helen’s Bay. But it is worthy of note that the

G. de Sta. Ellena of the Cantino Chart is laid down in a position which corresponds rather with that of Table Bay than with that of St. Helen’s Bay.

The Portuguese came into contact with the inhabitants of the country adjacent to the anchorage. These people had tawny complexions, and carried wooden spears tipped with horn–assagais of a kind–and bows and arrows. They also used foxes’ tails attached to short wooden handles. We are not informed for what purposes the foxes’ tails were used. Were they used to brush flies away, or were they insignia of authority? The food of the natives was the flesh of whales, seals, and antelopes (gazellas), and the roots of certain plants. Crayfish or ‘Cape lobsters’ abounded near the anchorage.

The author of the roteiro affirms that the birds of the country resembled the birds in Portugal, and that amongst them were cormorants, larks, turtle-doves, and gulls. The gulls are called

"guayvotas," but "guayvotas" is probably another instance of the eccentric orthography of the author and equivalent to "gaivotas."

In December the squadron reached the Angra de São Bràs, which was either Mossel Bay or another bay in close proximity to Mossel Bay. Here penguins and seals were in great abundance. The author of the roteiro calls the penguins "sotelycairos," which is more correctly written "sotilicarios" by subsequent writers. The word is probably related to the Spanish "sotil" and the Latin "subtilis," and may contain an allusion to the supposed cunning of the penguins, which disappear by diving when an enemy approaches.

The sotilicarios, says the chronicler, could not fly because there were no quill-feathers in their wings; in size they were as large as drakes, and their cry resembled the braying of an ass.

Castanheda, Goes, and Osorio also mention the sotilicario in their accounts of the first voyage of Vasco da Gama, and compare its flipper to the wing of a bat – a not wholly inept comparison, for the under-surface of the wings of penguins is wholly devoid of feathery covering. Manuel de Mesquita Perestrello, who visited the south coast of Africa in 1575, also describes the Cape penguin. From a manuscript of his Roteiro in the Oporto Library, one learns that the flippers of the sotilicario were covered with minute feathers, as indeed they are on the upper surface and that they dived after fish, upon which they fed, and on which they fed their young, which were hatched in nests constructed of fishbones. There is nothing to cavil at in these statements, unless it be that which asserts that the nests were constructed of fishbones, for this is not in accordance with the observations of contemporary naturalists, who tell us that the nests of the Cape Penguin (Spheniscus demersus) are constructed of stones, shells, and debris. It is, therefore, probable that the fishbones which Perestrello saw were the remains of repasts of seals.

Seals, says the roteiro, were in great number at the Angra de São Bràs. On one occasion the number was counted and was found to be three thousand. Some were as large as bears and their roaring was as the roaring of lions. Others, which were very small, bleated like kids. These differences in size and in voice may be explained by differences in the age and in the sex of the seals, for seals of different species do not usually resort to the same locality. The seal which formerly frequented the south coast of Africa – for it is, I believe, no longer a denizen of that region – was that which is known to naturalists as Arctocephalus delalandii, and, as adult males sometimes attain eight and a half feet in length, it may well be described as of the size of a bear. Cubs from six to eight months of age measure about two feet and a half in length. The Portuguese caught anchovies in the bay, which they salted to serve as provisions on the voyage. They anchored a second time in the Angra de São Bràs in March, 1499, on their homeward voyage.

Yet one more allusion to the penguins and seals of the Angra de São Bràs is of sufficient historical interest to be mentioned. The first Dutch expedition to Bantam weighed anchor on the 2nd of April, 1595, and on the 4th of August of the same year the vessels anchored in a harbor called "Ague Sambras," in eight or nine fathoms of water, on a sandy bottom. So many of the sailors were sick with scurvy – "thirty or thirty-three," said the narrator, "in one ship" – that it was necessary to find fresh fruit for them. "In this bay," runs the English translation of the narrative, "lieth a small Island wherein are many birds called Pyncuins and sea Wolves that are taken with men’s hands." In the original Dutch narrative by Willem Lodewyckszoon, published in Amsterdam in 1597, the name of the birds appears as "Pinguijns."

Which of the following statements about the author’s attitude toward the sources that he cites is supported by the passage?

A. The author finds these sources to be filled with errors, but is using them as they are the only sources available.

B. The author thinks his sources are too elaborate in their descriptions.

C. The author reveres the sources he cites in the passage.

D. The author chose to mock his sources.

E. The author is skeptical about some of his sources' conclusions.

F. de Sta. Ellena of the Cantino Chart is laid down in a position which corresponds rather with that of Table Bay than with that of St. Helen’s Bay.
The Portuguese came into contact with the inhabitants of the country adjacent to the anchorage. These people had tawny complexions, and carried wooden spears tipped with horn–assagais of a kind–and bows and arrows. They also used foxes’ tails attached to short wooden handles. We are not informed for what purposes the foxes’ tails were used. Were they used to brush flies away, or were they insignia of authority? The food of the natives was the flesh of whales, seals, and antelopes (gazellas), and the roots of certain plants. Crayfish or ‘Cape lobsters’ abounded near the anchorage.
The author of the roteiro affirms that the birds of the country resembled the birds in Portugal, and that amongst them were cormorants, larks, turtle-doves, and gulls. The gulls are called
"guayvotas," but "guayvotas" is probably another instance of the eccentric orthography of the author and equivalent to

"gaivotas."
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Which of the following statements about the author’s attitude toward the sources that he cites is supported by the passage?

ANSWER: E

Explanation:

The author is skeptical about some of his sources' conclusions. Although the passage treats the historical accounts as useful evidence and carefully compares their terminology and descriptions, the author does not accept every claim uncritically. Most clearly, after reporting Perestrello’s account that Cape penguins made nests from fishbones, the author states that this assertion is not consistent with observations by contemporary naturalists. The author then supplies a reasoned alternative explanation: the fishbones Perestrello observed were probably remains left by seals after feeding rather than nesting material. This response shows a measured, evidence-based attitude: the author preserves the historical report, identifies its questionable conclusion, and evaluates it using more current natural-history knowledge. The same careful approach appears in qualified wording such as “probably” and in comparisons between historical descriptions and observable features of penguins and seals. This is the type of textual inference assessed in Reading and Writing: readers should determine an author’s perspective from specific details and qualifications rather than from a broad impression. See the College Board’s overview of SAT Reading and Writing skills and the digitized source collection at the Internet Archive.

QUESTION NO: 29

An instrument store gives a 10% discount to all students off the original cost of an instrument. During a back to school sale an additional 15% is taken off the discounted price. Julie, a student at the local high school, purchases a flute for $306. How much did it originally cost?

A. $325

B. $375

C. $400

D. $408

E. $425

ANSWER: C

Explanation:

$400 is correct because the two discounts are applied consecutively, not added together as a single 25% discount. Let the original price be *p*. First, Julie receives the student discount of 10%, so she pays 90% of the original price, or 0.90*p*. The back-to-school discount then removes 15% of that already discounted amount, leaving 85% of it, or 0.85(0.90*p*). Therefore, the final price is 0.765*p*. Since Julie paid $306, solve 0.765*p* = 306. Dividing gives *p* = 306 ÷ 0.765 = 400. Thus, the flute's original listed price was $400. This approach reflects the percent problem-solving skill assessed in PSAT math: convert each percent change to a decimal multiplier and apply each multiplier to the current amount. The College Board's SAT Suite overview describes the math section's emphasis on problem solving and quantitative reasoning: PSAT/NMSQT Math. For additional practice with percentage calculations, see Khan Academy's percent problems guide.

QUESTION NO: 30

The next morning a message came from Lady Berrick, to say that she would see her nephew after breakfast. Left by myself, I walked toward the pier, and met with a man who asked me to hire his boat. He had lines and bait, at my service. Most unfortunately, as the event proved, I decided on occupying an hour or two by sea fishing.

The wind shifted while we were out, and before we could get back to the harbor, the tide had turned against us. It was six o'clock when I arrived at the hotel. A little open carriage was waiting at the door. I found Romayne impatiently expecting me, and no signs of dinner on the table. He informed me that he had accepted an invitation, in which I was included, and promised to explain everything in the carriage. Our driver took the road that led toward the High Town. I subordinated my curiosity to my sense of politeness, and asked for news of his aunt's health In context, the word "subordinated" (at the end of the passage) most nearly means

A. lowered the level of importance.

B. left.

C. ensured it was stifled.

D. made certain to ignore.

E. forgot about.

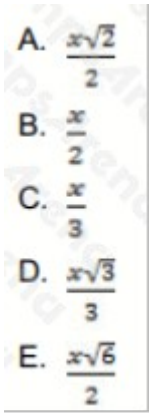
ANSWER: A

Explanation:

"lowered the level of importance." is correct because the narrator deliberately places one concern beneath another. He is curious about the unexpected invitation and wants Romayne's promised explanation, especially because dinner has been delayed and they are traveling toward the High Town. However, he says that he "subordinated" this curiosity to politeness before asking about Lady Berrick's health. In this context, subordinating something means ranking it as less important or giving it lower priority. The narrator does not eliminate his curiosity; rather, he restrains it temporarily because courteous concern for Romayne's aunt should come first. This meaning follows directly from the sentence's contrast between curiosity and politeness: politeness governs the conversation, while curiosity is treated as secondary. On PSAT Reading and Writing questions, word-in-context meaning should be determined from the immediate relationships among ideas, rather than from an isolated or overly absolute synonym. The College Board explains that the assessment measures understanding of words and phrases in context; see its PSAT Reading and Writing overview. For the general test structure and skills framework, consult the College Board's PSAT test overview.

QUESTION NO: 31

Two triangles have the same area. One is an equilateral triangle. The other is a 30°–60°–90° right triangle with hypotenuse x. Give the sidelength of the equilateral triangle in terms of x.



A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

F. √2x/2

ANSWER: F

Explanation:

The sidelength is √**2x/2**. In a 30°–60°–90° triangle, the side lengths have the fixed ratio 1 : √3 : 2. Since the hypotenuse is x, the shorter leg is x/2 and the longer leg is √3x/2. Thus, the right triangle's area is one-half times the product of its legs: (1/2)(x/2)(√3x/2) = √3x²/8.

Let s be the sidelength of the equilateral triangle. An equilateral triangle with side s has area √3s²/4. Because the problem states that the two triangles have equal areas, set √3s²/4 equal to √3x²/8. Cancelling the common factor √3 and solving gives s² = x²/2. A sidelength is positive, so s = x/√2, which is equivalently √2x/2. This uses the standard special-right-triangle ratio and the standard equilateral-triangle area formula. See Math is Fun: 30°–60°–90° Triangles and Math is Fun: Equilateral Triangles.

QUESTION NO: 32

(1) An incredible hot-air balloon exhibition happened on September 5, 1862. (2) It was given by Glaisher and Coxwell, two Englishmen. (3) There was no compressed oxygen for them to breathe in those days. (4) They got so high that they couldn't use their limbs. (5) Coxwell had to open the descending valve with his teeth. (6) Before Glaisher passed out, he recorded an elevation of twenty-nine thousand feet. (7) Many believe they got eight thousand feet higher before they began to descend, making their ascent the highest in the nineteenth century.

(8) Now the largest balloon to go up in the nineteenth century was "The Giant." (9) The balloon held 215,000 cubic feet of air and was 74 feet wide. (10) It could carry four and a half tons of cargo. (11) Its flight began in Paris, in 1853, with fifteen passengers. (12) All of whom returned safely. (13) The successful trip received a great deal of national and international press because many thought the hot-air balloon would become a form of common transportation.

Which of the following is the best way to combine sentences 9 and 10? The balloon held 215,000 cubic feet of air and was 74 feet wide. It could handle four and a half tons of cargo.

A. The balloon held 215,000 cubic feet of air and was 74 feet wide, which could handle four and a half tons of cargo.

B. The balloon held 215,000 cubic feet of air and was 74 feet wide, handling four and a half tons of cargo.

C. The balloon held 215,000 cubic feet of air and was 74 feet wide; it could handle four and a half tons of cargo.

D. The balloon held 215,000 cubic feet of air and was 74 feet wide, and it could handle four and a half tons of cargo.

E. The balloon held 215,000 cubic feet of air and was 74 feet wide, but it could carry four and a half tons of cargo

ANSWER: C

Explanation:

The balloon held 215,000 cubic feet of air and was 74 feet wide; it could handle four and a half tons of cargo. is the strongest revision because it joins two closely related, complete sentences with a semicolon. The first independent clause provides the balloon's size and capacity, while the second independently states its cargo capability. A semicolon is appropriate when two independent clauses are so closely connected that presenting them in one sentence improves flow and emphasizes their relationship. It also creates a clean, readable sentence without introducing an unnecessary contrast or an unclear modifying phrase. The pronoun "it" has a clear antecedent: "The balloon." In addition, the wording preserves all essential details from the original two sentences and maintains a formal, concise style appropriate for an editing question. Standard punctuation guidance explains that a semicolon may connect independent clauses when they are closely related in meaning; see the Purdue Online Writing Lab's semicolon guidance. The College Board's SAT Suite also identifies command of Standard English conventions, including sentence boundaries and punctuation, as a tested writing skill: SAT Reading and Writing overview.

QUESTION NO: 33

Although often confused with each other, global warming and ozone depletion are two separate problems threatening Earth's ecosystem today. Global warming is caused by the build-up of heattrapping gases in the atmosphere. It was dubbed the "greenhouse effect" because it is similar to a greenhouse in that the sun's rays are allowed into the greenhouse but the heat from these rays in unable to escape. Ozone depletion, however, is the destruction of the ozone layer. Chemicals such as chlorofluorocarbons and methyl bromide react with ozone, leaving a "hole" in the ozone layer that lets dangerous UV rays through. Both are serious threats to life on Earth. While the greenhouse effect maintains the appropriate temperature for life on Earth, problems are exacerbated when the quantity of greenhouse gases in the Earth's atmosphere increases drastically. When this occurs, the amount of heat energy that is insulated within the Earth's atmosphere increases correspondingly and results in a rise in global temperature.

An increase of a mere few degrees Celsius does not appear very threatening. However, numbers can be deceiving. When you consider that the Ice Age resulted from temperatures only slightly cooler than those today, it is obvious that even very subtle temperature changes can significantly impact global climate. Global warming threatens to desecrate the natural habitats of organisms on Earth and disturb the stability of our ecosystem. The climate changes that would result from global warming could trigger droughts, heat waves, floods, and other extreme weather events. Like most other environmental problems, humans are the cause of global warming. The burning of fossil fuels is largely responsible for the increase in the concentration of carbon dioxide in the atmosphere. Every time someone drives a car or powers their home with energy derived from power plants that use coal, carbon dioxide is released into the atmosphere. The atmospheric concentrations of carbon dioxide and methane have risen meteorically since preindustrial times, mainly due to the contributions of factories, cars, and large-scale agriculture. Even if we immediately stopped emitting greenhouse gases, we would continue to see the effects of global warming for decades because of the damage we have already inflicted.

Despite the pessimistic outlook, there are things that can be done to reduce global warming. Although the problem may seem overwhelming, individuals can make a positive difference in combating global warming. Simple things like driving less, using public transportation, and conserving electricity generated by combustion of fossil fuels can help reduce the emissions of greenhouse gases. It is important to realize that it is not too late to make a difference.

If everyone does what they can to reduce their contributions of greenhouse gases to the atmosphere, the efforts of people around the world will act in concert to thwart the progression of global warming. If the effort is not made immediately, the delicate global ecosystem could be thrown irreversibly out of balance, and the future of life on Earth may be jeopardized. As used in this passage, exacerbated (line 19) means

A. annoyed

B. improved

C. worsened

D. embittered

E. exasperated

ANSWER: C

Explanation:

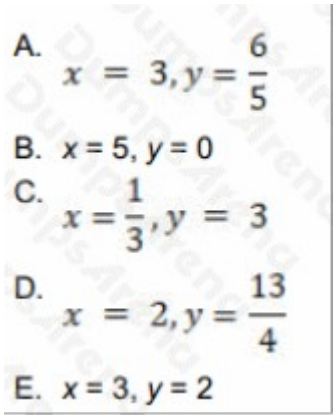
“Worsened” is correct because the passage says that the problem becomes more severe when the amount of greenhouse gases increases drastically. The surrounding sentences describe an escalating effect: additional greenhouse gases trap more heat energy in the atmosphere, which in turn raises global temperature. In this context, “exacerbated” means made more serious, more intense, or worse. This meaning fits the author’s argument that the natural greenhouse effect helps maintain a temperature suitable for life, but excessive greenhouse-gas concentrations amplify that effect and create harmful climate consequences. Using context is an important vocabulary strategy on reading assessments: readers should connect an unfamiliar word to the cause-and-effect relationship and tone of the surrounding sentences rather than relying only on a familiar word part. Merriam-Webster defines “exacerbate” as making something “more violent, bitter, or severe,” which supports the meaning “worsened.” See Merriam-Webster’s definition of exacerbate. The passage’s discussion of increasing heat retention and rising temperatures also aligns with the scientific explanation that higher concentrations of greenhouse gases warm the climate; see the NASA overview of the causes of climate change.

QUESTION NO: 34

What is the solution to the following system of equations:

3x + 5y = 15

3x + 3y = 15



A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

F. (5, 0)

ANSWER: F

Explanation:

The solution is **(5, 0)**. A solution to a system must make both equations true at the same time. Because both equations have the identical term *3x* and the same total of 15, subtracting the second equation from the first efficiently eliminates *x*: (3x + 5y) − (3x + 3y) = 15 − 15. This simplifies to 2y = 0, so y = 0. Substituting y = 0 into either original equation gives 3x + 3(0) = 15, or 3x = 15. Dividing by 3 gives x = 5. Therefore, the ordered pair is (5, 0). Checking confirms the result: 3(5) + 5(0) = 15 and 3(5) + 3(0) = 15. This approach is an example of elimination, a standard method for solving linear systems: when like terms

have matching coefficients, subtraction can remove one variable and leave a one-variable equation. For additional guidance on solving systems by elimination, see Khan Academy's elimination lesson and the College Board SAT Math overview.

QUESTION NO: 35

Adapted from "Co. Aytch," Maury Grays, First Tennessee Regiment; or, A Side Show of the Big Show by Samuel Rush Watkins (1900 ed.)

In giving a description of this most memorable battle, I do not pretend to give you figures, and describe how this general looked and how that one spoke, and the other one charged with drawn saber, etc. I know nothing of these things – see the history for that. I was simply a soldier of the line, and I only write of the things I saw. I was in every battle, skirmish and march that was made by the First Tennessee Regiment during the war, and I do not remember of a harder contest and more evenly fought battle than that of Perryville. If it had been two men wrestling, it would have been called a "dog fall." Both sides claim the victory – both whipped.

I stood picket in Perryville the night before the battle – a Yankee on one side of the street, and I on the other. We got very friendly during the night, and made a raid upon a citizen's pantry, where we captured a bucket of honey, a pitcher of sweet milk, and three or four biscuits. The old citizen was not at home – he and his whole household had gone visiting, I believe. In fact, I think all of the citizens of Perryville were taken with a sudden notion of promiscuous visiting about this time; at least they were not at home to all callers.

At length the morning dawned. Our line was drawn up on one side of Perryville, the Yankee army on the other. The two enemies that were soon to meet in deadly embrace seemed to be eyeing each other. The blue coats lined the hillside in plain view. You could count the number of their regiments by the number of their flags. We could see the huge war dogs frowning at us, ready at any moment to belch forth their fire and smoke, and hurl their thunderbolts of iron and death in our very midst.

I wondered why the fighting did not begin. Never on earth were our troops more eager for the engagement to open. The Yankees commenced to march toward their left, and we marched almost parallel to our right – both sides watching each other's maneuvers and movements. It was but the lull that precedes the storm. Colonel Field was commanding our brigade, and Lieutenant-Colonel Patterson our regiment. About 12 o'clock, while we were marching through a corn field, in which the corn had been shocked, they opened their war dogs upon us. The beginning of the end had come. Here is where Captain John

F. Wheless was wounded, and three others, whose names I have forgotten. The battle now opened in earnest, and from one end of the line to the other seemed to be a solid sheet of blazing smoke and fire. Our regiment crossed a stream, being preceded by Wharton's Texas Rangers, and we were ordered to attack at once with vigor. Here General Maney's horse was shot. From this moment the battle was a mortal struggle. Two lines of battle confronted us. We killed almost everyone in the first line, and were soon charging over the second, when right in our immediate front was their third and main line of battle from which four Napoleon guns poured their deadly fire.

We did not recoil, but our line was fairly hurled back by the leaden hail that was poured into our very faces. Eight color-bearers were killed at one discharge of their cannon. We were right up among the very wheels of their Napoleon guns. It was death to retreat now to either side. Our Lieutenant-Colonel Patterson halloed to charge and take their guns, and we were soon in a hand-tohand fight – every man for himself – using the butts of our guns and bayonets. One side would waver and fall back a few yards, and would rally, when the other side would fall back, leaving the four Napoleon guns; and yet the battle raged. Such obstinate fighting I never had seen before or since. The guns were discharged so rapidly that it seemed the earth itself was in a volcanic uproar. The iron storm passed through our ranks, mangling and tearing men to pieces. The very air seemed full of stifling smoke and fire which seemed the very pit of hell, peopled by contending demons.

Our men were dead and dying right in the very midst of this grand havoc of battle. It was a life to life and death to death grapple. The sun was poised above us, a great red ball sinking slowly in the west, yet the scene of battle and carnage continued. I cannot describe it. The mantle of night fell upon the scene. I do not know which side whipped, but I know that I helped bring off those four Napoleon guns that night though we were mighty easy about it.

Based on how the phrase is used in the third paragraph, what are "war dogs"?

A. Cavalrymen

B. Skirmishers

C. Combat dogs

D. Infantrymen

E. Cannons

F. Not a valid answer choice.

ANSWER: E

Explanation:

Cannons is correct because the narrator's figurative description identifies the "war dogs" by what they do: they are "ready at any moment to belch forth their fire and smoke" and to send "thunderbolts of iron and death" into the opposing troops. Those are the effects of artillery fire. The next paragraph confirms this contextual inference when the narrator says that the opposing force "opened their war dogs upon us," meaning that it began firing its artillery. Later details about "Napoleon guns," cannon fire, wheels of the guns, and the effort to capture the four guns reinforce that the account is describing battlefield cannon rather than soldiers or animals. "War dogs" is therefore vivid personification: the weapons appear huge, threatening, and poised to attack, as if they were snarling animals. The question tests using nearby textual evidence to determine a phrase's meaning in context, a core reading skill described in the College Board's SAT Reading and Writing overview. The wording also aligns with the artillery-focused battle narrative in Samuel Rush Watkins's Co. Aytch.

QUESTION NO: 36

The performer was exceedingly _____; she could juggle three apples at once.

A. inept

B. contentious

C. complacent

D. adroit

E. astute

ANSWER: D

Explanation:

The correct answer is **adroit**. "Adroit" means skillful, clever, or dexterous in the use of one's hands or mind. The clue that the performer "could juggle three apples at once" specifically demonstrates physical coordination and practiced manual skill, which makes "adroit" the most precise word for the blank. The adverb "exceedingly" intensifies the description, conveying that her skill was exceptional rather than merely adequate. Juggling requires controlled, coordinated hand movements, timing, and accuracy; therefore, describing the performer as adroit creates a logical and natural relationship between the statement and its supporting detail. Major dictionaries define "adroit" as clever or skillful, especially in using the hands or mind. See Merriam-Webster's definition of "adroit" and Cambridge Dictionary's definition of "adroit".

QUESTION NO: 37

The measures in degrees of the interior angles of a convex hexagon are as follows:

$$\left(\frac{x}{10}+70\right),\left(\frac{x}{2}\right),\left(\frac{x}{4}+5\right),\left(\frac{x}{2}+5\right),(-x+390),\text{and } 180.$$

What is the measure in degrees of the hexagon's largest angle?

A. 180

B. 190

C. 170

D. 200

E. 210

ANSWER: B

Explanation:

The correct answer is 190. A hexagon has six sides, so the sum of its interior angles is calculated with the polygon-angle formula, 180(n − 2). Substituting 6 for n gives 180(6 − 2) = 720 degrees. This formula is appropriate because the figure is specified as a convex hexagon; all six listed interior angles must total 720 degrees.

Adding the six angle expressions shown in the diagram and setting their sum equal to 720 gives (x/10 + 70) + x/2 + (x/4 + 5) + (x/2 + 5) + (−x + 390) + 180 = 720. Combining like terms produces 0.35x + 650 = 720, so 0.35x = 70 and x = 200.

Substitution into the angle expressions yields measures of 90, 100, 55, 105, 190, and 180 degrees. Thus, the greatest interior-angle measure is 190 degrees. The interior-angle sum rule is also summarized in the Khan Academy review of polygon interior angles and is consistent with the geometry skills assessed on the College Board PSAT Math test.

QUESTION NO: 38

What is the cost in dollars to steam clean a room W yards wide and L yards long it the steam cleaners charge 10 cents per square foot?

A. 0.9WL

B. 0.3WL

C. 0.1WL

D. 9WL

E. 3WL

ANSWER: A

Explanation:

0.9WL is correct because the room's dimensions are given in yards, while the cleaning price is stated per square foot. Each yard equals 3 feet. Therefore, a width of W yards is 3W feet and a length of L yards is 3L feet. The floor area in square feet is consequently (3W)(3L), or 9WL square feet. The steam cleaners charge 10 cents per square foot, which is $0.10 per square foot. Multiplying the area by the dollar rate gives 9WL × 0.10 = 0.9WL dollars. Thus, the total cost is $0.9WL. This calculation applies the essential area-unit conversion before using the per-square-foot price: converting both linear dimensions from yards to feet causes the area to be multiplied by 3 × 3, or 9. The U.S. customary conversion of 1 yard to 3 feet is listed by the National Institute of Standards and Technology. For further guidance on converting units before calculating area, see Khan Academy's unit-area conversion resource.

QUESTION NO: 39

Solve for (x, y) in the system of equations:

y = 3x + 4 2x + 3y = 34

A. (2, 10)

B. (3, 13)

C. The system has no solution

D. (4, 16)

E. (5, 19)

ANSWER: A

Explanation:

The solution is **(2, 10)**. Interpreting the displayed system as *y = 3x + 4* and *2x + 3y = 34*, substitute the expression for *y* from the first equation into the second equation. This gives 2x + 3(3x + 4) = 34. Simplifying produces 2x + 9x + 12 = 34, so 11x = 22 and x = 2. Substituting x = 2 into y = 3x + 4 gives y = 3(2) + 4 = 10. Therefore, the ordered pair (2, 10) satisfies both equations: its y-value agrees with the first equation, and 2(2) + 3(10) = 34 verifies the second equation. This substitution method is a standard approach for solving a linear system when one equation is already written with a variable isolated. For further review of solving systems by substitution, see Khan Academy and OpenStax Elementary Algebra.

QUESTION NO: 40

A vitamin's expiration date has passed. It was supposed to contain 500mg of Calcium, but it has lost 325mg of Calcium. How many mg of Calcium are left?

A. 135mg

B. 175mg

C. 185mg

D. 200mg

E. 220mg

ANSWER: B

Explanation:

The correct answer is **175mg**. The vitamin originally contained 500 mg of calcium, and it lost 325 mg. “Lost” indicates that the amount remaining must be found by subtraction: 500 − 325. Starting with 500 mg, subtract 300 mg to get 200 mg, then subtract the remaining 25 mg to get 175 mg. Therefore, 175 mg of calcium remains in the vitamin.

This problem models a change in quantity: an initial amount is reduced by a stated amount, so subtraction is the appropriate operation. The units remain milligrams throughout the calculation, which confirms that the result should also be expressed in mg. This use of subtraction is consistent with standard arithmetic principles for finding a remaining quantity after a loss. For a review of multi-digit subtraction, see Khan Academy’s subtraction lesson. Additional practice with subtracting whole numbers is available from Math Is Fun.

QUESTION NO: 41

The perimeter of a right triangle is 40 units. If the lengths of the sides are x, 2x – 1, and x + 9 units, then what is the area of the triangle?

A. 136 units2

B. 255 units2

C. 215 units2

D. 60 units2

E. 68 units2

ANSWER: D

Explanation:

The correct answer is **60 units2**. The perimeter is the sum of all three side lengths, so set up the equation *x + (2x − 1) + (x + 9) = 40*. Combining like terms gives *4x + 8 = 40*, so *4x = 32* and therefore *x = 8*. Substituting this value into the side expressions gives side lengths of 8, 15, and 17 units. These form a right triangle because $8^2 + 15^2 = 64 + 225 = 289$, which equals 17^2. Thus, the sides measuring 8 and 15 units are the perpendicular legs. A triangle’s area is one-half the product of

its base and perpendicular height: *Area = (1/2)(8)(15) = 60*. Therefore, the triangle's area is 60 square units. This method follows the standard geometry definition of triangular area and the Pythagorean relationship for right triangles. See Khan Academy: Area of triangles and Encyclopaedia Britannica: Pythagorean theorem.

QUESTION NO: 42

If 17 – x > 19, which of the following could be a value of x?

A. –2

B. 0

C. 2

D. 4

E. –4

ANSWER: E

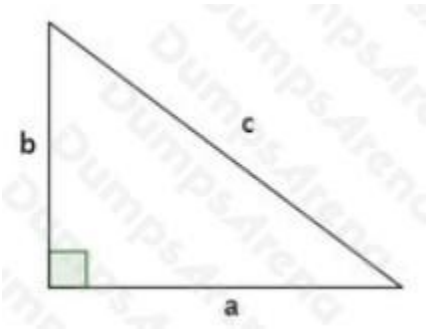
Explanation:

The value **–4** could be a value of *x* because it makes the inequality true when substituted into the original expression. Replacing *x* with –4 gives 17 – (–4) > 19. Subtracting a negative value is equivalent to adding its positive counterpart, so the left side becomes 17 + 4, or 21. Since 21 is greater than 19, the inequality is satisfied.

More generally, solving the inequality confirms this result. Starting with 17 – *x* > 19, subtract 17 from both sides to obtain –*x* > 2. Multiplying both sides by –1 reverses the inequality sign, yielding *x* < –2. Therefore, any number less than –2 is an allowable value, and –4 meets that condition. This use of substitution is especially helpful on PSAT questions because it directly tests whether a proposed value satisfies the stated inequality. For further practice with solving linear inequalities and the rule for reversing an inequality when multiplying or dividing by a negative number, see Khan Academy and the College Board PSAT Math overview.

QUESTION NO: 43

Side a in the triangle below (not to scale) is equal to 5. Side b is equal to 11. What is the length of side c?



A. 146

B. 12

C. √135

D. √146

E. 16

ANSWER: D

Explanation:

The correct answer is √**146**. The diagram represents a right triangle, with the sides of length 5 and 11 as the two legs and side c as the hypotenuse, the side opposite the right angle. For a right triangle, the Pythagorean theorem states that the sum of the squares of the leg lengths equals the square of the hypotenuse: $5^2 + 11^2 = c^2$. Squaring the known side lengths gives $25 + 121 = c^2$, so $c^2 = 146$. Taking the positive square root gives $c = \sqrt{146}$. A side length must be positive, so √146 is the appropriate value. Because 146 has no perfect-square factor greater than 1, the radical cannot be simplified further. The fact that the diagram is not drawn to scale does not affect this calculation; the labeled measurements and right-angle relationship determine the length. The College Board's SAT Suite math materials identify the Pythagorean theorem as a key relationship for solving right-triangle problems; see College Board's math formulas reference. For additional guidance on applying this theorem, see Khan Academy's Pythagorean theorem review.

QUESTION NO: 44

Although there were a number of variations of the painting, they were all derived from a single _____.

A. artist

B. image

C. archetype

D. masterpiece

E. picture

ANSWER: C

Explanation:

The correct completion is **archetype**. The sentence says that several variations of a painting were "all derived from" one source. An archetype is an original model, pattern, or exemplary form from which later versions, copies, or related works develop. Thus, it precisely conveys that the paintings share a common original design or prototype.

This usage fits the relationship established by "variations" and "derived": the individual paintings are not merely separate images but versions based on a foundational model. In art and literary discussion, *archetype* can identify a prototype that provides the recognizable pattern for later representations. The word is also used more broadly for an original pattern or model that subsequent examples resemble. Standard dictionary definitions support this meaning: Merriam-Webster defines an archetype as "the original pattern or model of which all things of the same type are representations or copies," while Britannica describes it as an original model or prototype. In this context, the blank requires a noun naming that single underlying model, making **archetype** the most precise choice.

References: Merriam-Webster: archetype; Britannica Dictionary: archetype.

QUESTION NO: 45

Factor the following:

x2 – 9x + 18

A. (x – 3)(x + 6)

B. (x – 9)(x + 2)

C. (x – 3)(x – 6)

D. (x – 2)(x – 9)

E. (x – 18)(x + 1)

ANSWER: C

Explanation:

The correct factorization is **(x – 3)(x – 6)**. To factor the quadratic expression, identify two numbers whose product is the constant term, 18, and whose sum is the coefficient of the middle term, −9. Because the constant term is positive while the middle term is negative, both numbers must be negative. The numbers −3 and −6 multiply to give positive 18 and add to −9. Therefore, the expression can be written as (x − 3)(x − 6). This can be verified by multiplying the binomials: x times x is x^2; the outer and inner products are −6x and −3x, which combine to −9x; and multiplying −3 by −6 gives 18. The expanded result is $x^2 − 9x + 18$, exactly matching the original expression. Factoring quadratics this way uses the distributive property in reverse and is a standard method for expressions of the form $x^2 + bx + c$. For further review of factoring trinomials, see Khan Academy's factoring quadratic expressions guide and OpenStax's guide to factoring trinomials.

QUESTION NO: 46

Factor 4x3 – 16x

A. 4x(x – 2)(x –2)

B. 4x(x2 – 4)

C. 4x(x + 2)(x – 2)

D. cannot be factored

E. 4x(x + 2)(x + 2)

ANSWER: C

Explanation:

The fully factored expression is **4x(x + 2)(x – 2)**. First, identify the greatest common factor shared by both terms, 4x. Factoring out 4x from $4x^3 – 16x$ leaves $x^2 – 4$, giving $4x(x^2 – 4)$. The expression inside the parentheses is a difference of two squares because $x^2 – 4$ can be written as $x^2 – 2^2$. Applying the difference-of-squares identity, $a^2 – b^2 = (a + b)(a – b)$, produces (x + 2)(x – 2). Therefore, the complete factorization is 4x(x + 2)(x – 2). Expanding the two binomials gives $x^2 – 4$, and multiplying that result by 4x reproduces the original expression, confirming the factorization. This method of first removing the greatest common factor and then checking for special factoring patterns is a reliable approach for polynomial-factorization questions. Review the difference-of-squares pattern at Khan Academy and the PSAT math skills overview at College Board.

QUESTION NO: 47

Upon reaching his eightieth birthday, Anatol made the _____ observation, "I have entered the decade of my death."

A. remarkable

B. morbid

C. startling

D. adroit

E. condescending

ANSWER: B

Explanation:

The correct word is "morbid" because Anatol's statement centers on death and frames his new decade primarily in terms of its likely proximity to dying. In ordinary usage, morbid describes an unhealthy, gloomy, or unusually focused interest in death, disease, or other disturbing subjects. Calling his observation morbid accurately conveys both the content of the remark and its dark emotional emphasis: rather than simply noting that he has reached age eighty, he characterizes the period ahead as the final decade of his life. This is precisely the kind of death-oriented perspective associated with the word. The adjective

can describe a thought, comment, curiosity, or outlook, so it fits grammatically and idiomatically before “observation.” Merriam-Webster defines morbid in part as being abnormally susceptible to or interested in unhealthy or unpleasant subjects, especially death. Similarly, the Cambridge Dictionary notes that morbid can mean too interested in unpleasant subjects, particularly death. Anatol’s wording directly expresses that kind of somber preoccupation.

QUESTION NO: 48

Given the _____ nature of movie stars, I suppose one should not question the divorce rate among them, but question whether it is a character flaw developed in the business, or a trait necessary to enter the business.

A. grandiose

B. capricious

C. ideological

D. indulgent

E. pernicious

ANSWER: B

Explanation:

The correct completion is “capricious.” In this context, the sentence calls for an adjective describing a personal disposition that could make a high divorce rate seem unsurprising. “Capricious” means characterized by sudden, unpredictable changes in mood, behavior, or decisions. That meaning fits the sentence’s suggestion that movie stars may possess a temperament associated with instability in close relationships. The phrasing also raises a broader question about whether this tendency is cultivated by the entertainment industry or is already present as a trait that helps someone enter such a competitive, unpredictable field. A capricious nature can therefore be understood as the potential “character flaw” referenced by the sentence: impulsiveness and inconsistency may make maintaining long-term commitments more difficult. The word also works smoothly with “nature,” since English commonly uses “capricious nature” to describe someone whose choices or feelings are not steady or predictable. Dictionary definitions support this sense: Merriam-Webster defines the word as governed by impulse or characterized by unpredictable changes, while Cambridge emphasizes sudden changes in behavior or mood. See Merriam-Webster: capricious and Cambridge Dictionary: capricious.

QUESTION NO: 49

"The Place of Lesion Studies in Neuroscience" by Samantha Winter (2013)

It’s easy to forget that the study of neuroscience originated from non-normalized, non-statistically appraised methods like lesion studies. It’s equally easy, with the advent of sophisticated technology, to render such a method obsolete. A small group of neuroscientists today make a case for the reinstitution of lesion studies – the study of abnormal brains with damaged regions in order to better understand the brain – into the twenty-first-century cognitive neuroscience realm. Their suggestion is bold, but their argument is justified.

Cognitive neuroscientists advocate for the use of convergent methods. Many of them argue that with the limitations of our existing techniques, convergent evidence is imperative for sound research. If this is the case, why ignore a method that has potential for implying causality in a domain dominated by correlational research? Rather than advocating for a single method, neuroscientists should take their own advice and use convergent techniques. Sound research should combine a variety of techniques to examine both causal relationships and overcome the individual shortcomings of each method through the use of many.

Lesion studies are also significantly more beneficial now than they were in earlier times. Neuroimaging methods have enhanced our understanding of what contributes to the brain problems most often encountered, and more refined experiments have been developed to confirm the findings from the more unreliable lesion studies. This transformation allows lesion studies to be included alongside the other systems as a mechanism for understanding the human brain.

This essay is an example of _____.

A. a narrative

B. a persuasive essay

C. a research paper

D. a biography

E. a summary of a book

ANSWER: B

Explanation:

The correct answer is *a persuasive essay*. The passage has a clear position: lesion studies should be reinstated as part of modern cognitive-neuroscience research. Its author does not merely describe lesion studies or report neutral information about them. Instead, the author seeks to convince readers that this method deserves renewed use alongside contemporary techniques. The central claim is developed through reasons supporting that position, including lesion studies' potential to provide evidence about causal relationships and the value of combining methods to offset the limitations of any one technique.

The author's language also signals argumentation. Statements such as "why ignore a method," "neuroscientists should take their own advice," and "sound research should combine" express recommendations and invite the reader to accept a conclusion. The final paragraph adds further support by arguing that advances in neuroimaging and experimental design have made lesion studies more useful and reliable than in the past. This organization—claim, supporting reasons, and conclusion advocating a course of action—is characteristic of persuasive writing. For guidance on recognizing how authors advance claims with reasons and evidence, see the College Board's PSAT Reading and Writing overview and the Purdue OWL guide to establishing arguments.

QUESTION NO: 50

Although the conclusion to the argument appeared to be absolutely certain, in actuality, it was merely _____.

A. probable

B. deducible

C. inductive

D. reductive

E. questionable

ANSWER: A

Explanation:

The best completion is "probable." The contrast signaled by "although" and "in actuality" sets apparent absolute certainty against a conclusion that has a lower degree of confidence. "Probable" means likely to be true or to happen, rather than guaranteed. Thus, a conclusion can appear conclusive at first but, upon closer analysis, be supported only strongly enough to be considered likely. This precisely preserves the sentence's distinction between certainty and likelihood without suggesting that the conclusion is impossible or unsupported. In reasoning, probability expresses a degree of belief or expectation based on available evidence; it does not establish necessity. A conclusion described as probable may be well supported, but additional information could still alter the assessment. This is why "probable" naturally follows "merely": the word emphasizes that the argument's conclusion falls short of the absolute certainty it seemed to possess. See Merriam-Webster's definition of probable and Encyclopaedia Britannica's overview of probability theory.

QUESTION NO: 51

To get from his house to the hardware store, Bob must drive 3 miles to the east and then 4 miles to the north. If Bob was able to drive along a straight line directly connecting his house to the store, how far would he have to travel then?

A. 5 miles

B. 15 miles

C. 25 miles

D. 9 miles

E. 7 miles

ANSWER: A

Explanation:

5 miles is correct because the eastward and northward parts of Bob's route form perpendicular legs of a right triangle. The direct route from the house to the hardware store is the triangle's hypotenuse. Applying the Pythagorean theorem gives the direct distance as the square root of the sum of the squared leg lengths: $\sqrt{(3^2 + 4^2)} = \sqrt{(9 + 16)} = \sqrt{25} = 5$. Therefore, traveling directly would require Bob to drive 5 miles.

This is a classic 3-4-5 right triangle, an important relationship to recognize on the PSAT because it allows the distance to be found efficiently without a calculator. The reasoning depends on the directions being east and north: these directions are at right angles, so the two portions of the route meet perpendicularly. The direct path is necessarily shorter than the 7-mile route created by driving east and then north, while still reaching the same final location. For additional background on the distance formula and its connection to the Pythagorean theorem, see Khan Academy's Pythagorean theorem review and Math Is Fun's explanation of Pythagoras' theorem.

QUESTION NO: 52

Adapted from "Feathers of Sea Birds and Wild Fowl for Bedding" from The Utility of Birds by Edward Forbush (ed. 1922)

In the colder countries of the world, the feathers and down of waterfowl have been in great demand for centuries as filling for beds and pillows. Such feathers are perfect non-conductors of heat, and beds, pillows, or coverlets filled with them represent the acme of comfort and durability. The early settlers of New England saved for such purposes the feathers and down from the thousands of wild-fowl which they killed, but as the population increased in numbers, the quantity thus furnished was insufficient, and the people sought a larger supply in the vast colonies of ducks and geese along the Labrador coast.

The manner in which the feathers and down were obtained, unlike the method practiced in Iceland, did not tend to conserve and protect the source of supply. In Iceland, the people have continued to receive for many years a considerable income by collecting eider down, but there they do not "kill the goose that lays the golden eggs." Ducks line their nests with down plucked from their own breasts and that of the eider is particularly valuable for bedding. In Iceland, these birds are so carefully protected that they have become as tame and unsuspicious as domestic fowls In North America. Where they are constantly hunted they often conceal their nests in the midst of weeds or bushes, but in Iceland, they make their nests and deposit their eggs in holes dug for them in the sod. A supply of the ducks is maintained so that the people derive from them an annual income.

In North America, quite a different policy was pursued. The demand for feathers became so great in the New England colonies about the middle of the eighteenth century that vessels were fitted out there for the coast of Labrador for the express purpose of securing the feathers and down of wild fowl. Eider down having become valuable and these ducks being in the habit of congregating by thousands on barren islands of the Labrador coast, the birds became the victims of the ships' crews. As the ducks molt all their primary feathers at once in July or August and are then quite incapable of flight and the young birds are unable to fly until well grown, the hunters were able to surround the helpless birds, drive them together, and kill them with clubs. Otis says that millions of wildfowl were thus destroyed and that in a few years their haunts were so broken up by this wholesale slaughter and their numbers were so diminished that feather voyages became unprofitable and were given up.

This practice, followed by the almost continual egging, clubbing, shooting, etc. by Labrador fishermen, may have been a chief factor in the extinction of the Labrador duck, that species of supposed restricted breeding range. No doubt had the eider duck been restricted in its breeding range to the islands of Labrador, it also would have been exterminated long ago.

Which of the following would you LEAST expect to be discussed elsewhere in the book from which this passage was taken?

A. The raising of chickens for their eggs

B. The practice of sending messages by carrier pigeon

C. The use of tropical birds' feathers as hat decorations

D. Falconry

E. The types of birds encountered by the first Antarctic explorers

ANSWER: E

Explanation:

“The types of birds encountered by the first Antarctic explorers

” is the best answer because the passage’s subject and the source title establish the book’s central organizing idea: birds’ practical value or usefulness to people. The excerpt examines eider down as a valuable material for bedding, explains how it was collected, and contrasts sustainable harvesting in Iceland with destructive exploitation in Labrador. Its interest in bird populations is therefore tied directly to a human economic benefit and to the preservation of that benefit over time.

A discussion merely cataloging the birds observed by Antarctic explorers would primarily concern exploration or natural history. Without an indicated connection to a human use of those birds, it would not fit the book’s stated focus as closely as a topic concerning birds’ services, products, or roles in human activity. This conclusion comes from synthesizing the title with the passage’s repeated attention to the commercial demand for feathers and down, rather than from locating a detail stated word for word in the excerpt. The cited work is available through the Internet Archive’s record for *The Utility of Birds*. This type of question assesses how a passage’s purpose and source information predict the broader content of a work, a reading skill described in the College Board PSAT Reading and Writing overview.

QUESTION NO: 53

In compliance with the request of a friend of mine, who wrote me from the East, I called on good-natured, garrulous old Simon Wheeler, and inquired after my friend’s friend, Leonidas W. Smiley, as requested to do, and I hereunto append the result. I have a lurking suspicion that Leonidas W. Smiley is a myth; that my friend never knew such a personage; and that he only conjectured that, if I asked old Wheeler about him, it would remind him of his infamous Jim Smiley, and he would go to work and bore me nearly to death with some infernal reminiscence of him as long and tedious as it should be useless to me. If that was the design, it certainly succeeded.

I found Simon Wheeler dozing comfortably by the barroom stove of the old, dilapidated tavern in the ancient mining camp of Angel’s, and I noticed that he was fat and bald-headed, and had an expression of winning gentleness and simplicity upon his tranquil countenance. He roused up and gave me good-day. I told him a friend of mine had commissioned me to make some inquiries about a cherished companion of his boyhood named Leonidas W.

Smiley – Rev. Leonidas W. Smiley – a young minister of the Gospel, who he had heard was at one time a resident of Angel’s Camp. I added that, if Mr. Wheeler could tell me anything about this Rev. Leonidas W. Smiley, I would feel under many obligations to him.

What can we infer about what the author thinks of his friend from the East by the statement, “I have a lurking suspicion that Leonidas W. Smiley is a myth” 1st paragraph?

A. His friend is mistaken about the existence of Smiley.

B. His friend may be playing a practical joke on him.

C. He believes his friend wants revenge for some earlier misgivings.

D. His friend knows that Smiley and he will strike a friendship.

E. Smiley will, as a result of his friend referring him, will show him a rousing good time.

ANSWER: B

Explanation:

“His friend may be playing a practical joke on him.” is the best inference because the narrator’s suspicion extends beyond simply doubting whether Leonidas W. Smiley exists. He explicitly imagines that his friend invented the name in order to prompt Simon Wheeler to recount a lengthy, irrelevant story about Jim Smiley. The narrator further observes that this apparent plan “certainly succeeded,” confirming that he views the request as a deliberate trick that placed him in the path of

Wheeler's tedious reminiscence. The wording "lurking suspicion" gives the narrator a mildly wary but humorous tone: he cannot prove the friend's intention, but he strongly suspects that the friend anticipated exactly what would happen. This opening establishes the frame-story humor of Mark Twain's "The Celebrated Jumping Frog of Calaveras County," in which a seemingly ordinary inquiry becomes an excuse for an elaborate tale. The passage is available through Project Gutenberg; background on Twain and his work can be found at the Mark Twain Project.

QUESTION NO: 54

"Interpreting the Copernican Revolution" by Matthew Minerd (2014)

The expressions of one discipline can often alter the way that other subjects understand themselves. Among such cases are numbered the investigations of Nicolaus Copernicus. Copernicus is best known for his views concerning heliocentrism, a view which eventually obliterated many aspects of the ancient/medieval worldview, at least from the standpoint of physical science. It had always been the natural view of mankind that the earth stood at the center of the universe, a fixed point in reference to the rest of the visible bodies. The sun, stars, and planets all rotated around the earth.

With time, this viewpoint became one of the major reference points for modern life. It provided a provocative image that was used – and often abused – by many people for various purposes. For those who wished to weaken the control of religion on mankind, it was said that the heliocentric outlook proved man's insignificance. In contrast with earlier geocentrism, heliocentrism was said to show that man is not the center of the universe. He is merely one small being in the midst of a large cosmos. However, others wished to use the "Copernican Revolution" in a very different manner. These thinkers wanted to show that there was another "recentering" that had to happen. Once upon a time, we talked about the world. Now, however, it was necessary to talk of man as the central reference point. Just as the solar system was "centered" on the sun, so too should the sciences be centered on the human person.

However, both of these approaches are fraught with problems. Those who wished to undermine the religious mindset rather misunderstood the former outlook on the solar system. The earlier geocentric mindset did not believe that the earth was the most important body in the heavens. Instead, many ancient and medieval thinkers believed that the highest "sphere" above the earth was the most important being in the physical universe. Likewise, the so-called "Copernican Revolution" in physics was different from the one applied to the human person. Copernicus' revolution showed that the human point of view was not the center, whereas the later forms of "Copernican revolution" wished to show just the opposite.

Of course, there are many complexities in the history of such important changes in scientific outlook. Nevertheless, it is fascinating to see the wide-reaching effects of such discoveries, even when they have numerous, ambiguous effects.

How are two uses of the image of heliocentrism contrasted in this passage?

A. One calls for scientific detachment while the other calls for engagement in the world of culture.

B. One calls for detached peace while the other is likely to breed wars.

C. One implies the insignificance of the human person while the other implies humanity's greatness.

D. One is primarily scientific while the other is religious at its core.

E. None of the other answers

ANSWER: C

Explanation:

"One implies the insignificance of the human person while the other implies humanity's greatness" accurately states the contrast developed in the passage. The first use of heliocentrism treats the shift away from an earth-centered cosmos as evidence that human beings occupy no privileged physical position. Because Earth is one body within an immense universe, this interpretation portrays humanity as small and insignificant in comparison with the cosmos. The passage explicitly identifies this use as a way some writers tried to challenge religion's influence.

The second use applies the image of recentering in a figurative rather than astronomical sense. It proposes that, just as the sun becomes the organizing center of the solar system, the human person should become the central reference point for the sciences. Thus, this interpretation emphasizes human importance and makes the study of human life central. The author underscores that these are opposing appropriations of the same scientific image: Copernicus's physical model displaced the human viewpoint from the center, while the later human-centered application seeks to restore humanity to a central role. For historical context on Copernicus and heliocentrism, see Encyclopaedia Britannica and NASA Science.

QUESTION NO: 55

What is the hypotenuse of a right triangle with side lengths 12 and 16?

A. 18

B. 20

C. 14

D. 22

E. 28

ANSWER: B

Explanation:

The correct answer is **20**. In a right triangle, the hypotenuse is the side opposite the right angle and is found using the Pythagorean theorem: $a^2 + b^2 = c^2$, where c is the hypotenuse. Substituting the two given leg lengths gives $12^2 + 16^2 = c^2$. Squaring produces 144 + 256 = 400, so $c^2 = 400$. Taking the positive square root, because a side length cannot be negative, gives $c = 20$. This is also a scaled version of the well-known 3-4-5 right-triangle relationship: multiplying each value by 4 gives the side lengths 12, 16, and 20. Thus, 20 is the length that satisfies the right-triangle relationship for the two supplied side lengths. For a review of the theorem and its application to right triangles, see Khan Academy's Pythagorean theorem review and OpenStax's Pythagorean theorem lesson.

QUESTION NO: 56

"Darwinism's Effect on Science" by Matthew Minerd (2014)

For much of the history of human thought, the sciences have studied subjects that seemed to be eternal and unchanging. Even the basic laws of the Nile's flooding were investigated in the hopes of finding never-altering laws. Similarly, the scientific investigations of the ancient Near East and Greece into the regular laws of the stars ultimately looked for constant patterns. This overall pattern of scientific reasoning has left deep marks on the minds of almost all thinkers and found its apotheosis in modern physics. From the time of the early renaissance to the nineteenth century, physics represented the ultimate expression of scientific investigation for almost all thinkers. Its static laws appeared to be the unchanging principles of all motion and life on earth. By the nineteenth century, it had appeared that only a few details had to be "cleared up" before all science was basically known.

In many ways, this situation changed dramatically with the arrival of Darwinism. It would change even more dramatically in early twentieth-century physics as well. Darwin's theories of evolution challenged many aspects of the "static" worldview. Even those who did not believe that a divine being created an unchanging world were shaken by the new vistas opened up to science by his studies. It had been a long-accepted inheritance of Western culture to believe that the species of living organisms were unchanging in nature. Though there might be many different kinds of creatures, the kinds themselves were not believed to change. The thesis of a universal morphing of types shattered this cosmology, replacing the old world-view with a totally new one. Among the things that had to change in light of Darwin's work was the very view of science held by most people.

Given Darwin's statements, which of the following should be expected?

A. Human beings will likely all die in a massive nuclear war.

B. Although we do not train bears as pets today, we may well in years to come.

C. There were no dogs at one time in the earth's history.

D. Ancient physics was completely worthless.

E. Humanity as it is today has reached its fixed state.

ANSWER: C

Explanation:

“There were no dogs at one time in the earth's history.” follows directly from the passage’s central description of Darwinian evolution. The selection emphasizes that organisms and species are not fixed, eternal kinds; instead, living forms change over time. If species emerge through descent with modification, then a species that exists now must have arisen at some point in Earth’s history rather than having existed unchanged from the beginning. Therefore, before domestic dogs evolved from ancestral canid populations, there would have been a time when dogs did not yet exist.

This inference fits the passage’s contrast between an older “static” worldview and Darwin’s account of changing forms of life. The claim does not require a precise date for the origin of dogs. It simply applies the stated principle that kinds of creatures can change and that new forms can arise over long periods. Modern evolutionary biology likewise describes evolution as change in inherited characteristics of populations across generations. The University of California Museum of Paleontology’s Evolution 101 explains this foundational concept, while the Smithsonian’s introduction to evolution describes how species originate and diversify over time.

QUESTION NO: 57

Jennifer liked third period best as her English professor was a most _____ fellow; so much so that there was often no time left for student input, which suited her fine.

A. garrulous

B. ingenious

C. superlative

D. felicitous

E. facetious

ANSWER: A

Explanation:

The correct word is *garrulous*, which describes someone who talks a great deal, especially in a rambling or overly lengthy way. The sentence’s key contextual clue is that the professor spoke for so long that “there was often no time left for student input.” A garrulous professor would naturally dominate class discussion through extended speech, leaving little opportunity for students to contribute. The description also fits the grammatical structure: the blank modifies “fellow,” so it calls for an adjective describing the professor’s characteristic manner of speaking. Jennifer’s preference for this class period reinforces the implication that she was content to listen rather than participate. Merriam-Webster defines *garrulous* as “given to prosy, rambling, or tedious talkativeness,” a definition that closely matches the professor’s behavior in the sentence. See Merriam-Webster’s definition of garrulous and Cambridge Dictionary’s entry for garrulous.

QUESTION NO: 58

Adapted from Essays on Early Ornithology and Kindred Subjects by James R. McClymont (1920)

The voyagers named it the Angra de Santa Elena, and it may have been the bay which is now known as St. Helen’s Bay. But it is worthy of note that the

G. de Sta. Ellena of the Cantino Chart is laid down in a position which corresponds rather with that of Table Bay than with that of St. Helen’s Bay.

The Portuguese came into contact with the inhabitants of the country adjacent to the anchorage. These people had tawny complexions, and carried wooden spears tipped with horn–assagais of a kind–and bows and arrows. They also used foxes’ tails attached to short wooden handles. We are not informed for what purposes the foxes’ tails were used. Were they used to brush flies away, or were they insignia of authority? The food of the natives was the flesh of whales, seals, and antelopes (gazellas), and the roots of certain plants. Crayfish or ‘Cape lobsters’ abounded near the anchorage.

The author of the roteiro affirms that the birds of the country resembled the birds in Portugal, and that amongst them were cormorants, larks, turtle-doves, and gulls. The gulls are called

"guayvotas," but "guayvotas" is probably another instance of the eccentric orthography of the author and equivalent to "gaivotas."

In December the squadron reached the Angra de São Bràs, which was either Mossel Bay or another bay in close proximity to Mossel Bay. Here penguins and seals were in great abundance. The author of the roteiro calls the penguins "sotelycairos," which is more correctly written "sotilicarios" by subsequent writers. The word is probably related to the Spanish "sotil" and the Latin "subtilis," and may contain an allusion to the supposed cunning of the penguins, which disappear by diving when an enemy approaches.

The sotilicarios, says the chronicler, could not fly because there were no quill-feathers in their wings; in size they were as large as drakes, and their cry resembled the braying of an ass.

Castanheda, Goes, and Osorio also mention the sotilicario in their accounts of the first voyage of Vasco da Gama, and compare its flipper to the wing of a bat – a not wholly inept comparison, for the under-surface of the wings of penguins is wholly devoid of feathery covering. Manuel de Mesquita Perestrello, who visited the south coast of Africa in 1575, also describes the Cape penguin. From a manuscript of his Roteiro in the Oporto Library, one learns that the flippers of the sotilicario were covered with minute feathers, as indeed they are on the upper surface and that they dived after fish, upon which they fed, and on which they fed their young, which were hatched in nests constructed of fishbones. There is nothing to cavil at in these statements, unless it be that which asserts that the nests were constructed of fishbones, for this is not in accordance with the observations of contemporary naturalists, who tell us that the nests of the Cape Penguin (Spheniscus demersus) are constructed of stones, shells, and debris. It is, therefore, probable that the fishbones which Perestrello saw were the remains of repasts of seals.

Seals, says the roteiro, were in great number at the Angra de São Bràs. On one occasion the number was counted and was found to be three thousand. Some were as large as bears and their roaring was as the roaring of lions. Others, which were very small, bleated like kids. These differences in size and in voice may be explained by differences in the age and in the sex of the seals, for seals of different species do not usually resort to the same locality. The seal which formerly frequented the south coast of Africa – for it is, I believe, no longer a denizen of that region – was that which is known to naturalists as Arctocephalus delalandii, and, as adult males sometimes attain eight and a half feet in length, it may well be described as of the size of a bear. Cubs from six to eight months of age measure about two feet and a half in length. The Portuguese caught anchovies in the bay, which they salted to serve as provisions on the voyage. They anchored a second time in the Angra de São Bràs in March, 1499, on their homeward voyage.

Yet one more allusion to the penguins and seals of the Angra de São Bràs is of sufficient historical interest to be mentioned. The first Dutch expedition to Bantam weighed anchor on the 2nd of April, 1595, and on the 4th of August of the same year the vessels anchored in a harbor called "Ague Sambras," in eight or nine fathoms of water, on a sandy bottom. So many of the sailors were sick with scurvy – "thirty or thirty-three," said the narrator, "in one ship" – that it was necessary to find fresh fruit for them. "In this bay," runs the English translation of the narrative, "lieth a small Island wherein are many birds called Pyncuins and sea Wolves that are taken with men’s hands." In the original Dutch narrative by Willem Lodewyckszoon, published in Amsterdam in 1597, the name of the birds appears as "Pinguijns."

In the third paragraph, the information about orthography serves to _____.

A. Show that the differences between "guayvotas" and "gaivotas" are due to the writer's strange way of spelling things.

B. Show that mistakes in spelling "gaivotas" as "guayvotas" arose due to arguments over proper roots of words.

C. Show that the author of the roteiro was more interested in the animals than his or her writing.

D. Show that the previous documenters of bird-life on the country had little idea of what they were doing.

E. Show that the birds we see today are a different species to those mentioned in the roteiro.

F. de Sta. Ellena of the Cantino Chart is laid down in a position which corresponds rather with that of Table Bay than with that of St. Helen’s Bay.
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In the third paragraph, the information about orthography serves to _____.

ANSWER: A

Explanation:

“Show that the differences between ‘guayvotas’ and ‘gaivotas’ are due to the writer's strange way of spelling things.” is correct because the passage explicitly identifies the unusual spelling as an example of the roteiro author’s “eccentric orthography.” The author first reports the historical term used for gulls, “guayvotas,” and then immediately clarifies that it is probably equivalent to “gaivotas.” Thus, the orthographic information has a precise explanatory purpose: it resolves an apparent difference between two spellings and lets readers understand that both terms refer to the same word, rather than to different birds or concepts. This is a text-evidence question, so the key is the direct relationship the passage establishes between the words: the spelling variation is attributed to the original writer’s unconventional spelling practices. On PSAT-style reading questions, selecting an answer that accurately restates an explicit claim in the passage is the strongest approach. The College Board’s guidance on reading questions emphasizes grounding an answer in the information and wording supplied by the text: College Board: PSAT/NMSQT Reading and Writing. For background on the historical Portuguese term “gaivota,” see the Priberam Dictionary entry for gaivota.

QUESTION NO: 59

"Darwinism's Effect on Science" by Matthew Minerd (2014)

For much of the history of human thought, the sciences have studied subjects that seemed to be eternal and unchanging. Even the basic laws of the Nile’s flooding were investigated in the hopes of finding never-altering laws. Similarly, the scientific investigations of the ancient Near East and Greece into the regular laws of the stars ultimately looked for constant patterns. This overall pattern of scientific reasoning has left deep marks on the minds of almost all thinkers and found its apotheosis in modern physics. From the time of the early renaissance to the nineteenth century, physics represented the ultimate expression of scientific investigation for almost all thinkers. Its static laws appeared to be the unchanging principles of all motion and life on earth. By the nineteenth century, it had appeared that only a few details had to be “cleared up” before all science was basically known.

In many ways, this situation changed dramatically with the arrival of Darwinism. It would change even more dramatically in early twentieth-century physics as well. Darwin's theories of evolution challenged many aspects of the "static" worldview. Even those who did not believe that a divine being created an unchanging world were shaken by the new vistas opened up to science by his studies. It had been a long-accepted inheritance of Western culture to believe that the species of living organisms were unchanging in nature. Though there might be many different kinds of creatures, the kinds themselves were not believed to change. The thesis of a universal morphing of types shattered this cosmology, replacing the old world-view with a totally new one. Among the things that had to change in light of Darwin's work was the very view of science held by most people.

Consider the underlined sentence. What was the new "cosmology" that arose after Darwin's day?

A. A completely areligious outlook on life.

B. The belief that history was an important but secondary aspect of scientific studies.

C. The view of the world as a changing reality with its own historical nature.

D. The view of the world as an unchanging whole to be investigated by science.

E. None of the other answers

ANSWER: C

Explanation:

The view of the world as a changing reality with its own historical nature is correct because the passage directly contrasts Darwinism with the earlier scientific assumption that nature was fundamentally static and governed by eternal, unchanging types. The author explains that Western thinkers had long believed species themselves did not change, even if many varieties of creatures existed. Darwin's evolutionary theory introduced the idea that living forms transform across time—described in the passage as a "universal morphing of types." That claim required a new cosmology, meaning a broad understanding of reality as a whole. In this new outlook, the natural world is not merely a fixed system to be described through permanent laws; it also has a developmental history. Species and their characteristics must be understood in relation to change over long periods of time, including descent and adaptation. This interpretation matches the central historical principle of evolution by natural selection: populations change over generations, and all organisms are connected through evolutionary history. Darwin outlined this framework in On the Origin of Species, and the National Academy of Sciences summarizes evolution as change in populations over time in its overview of evolution.

QUESTION NO: 60

In some of the poorest neighborhoods of New York City, community gardens are springing up as _____ the filth and desolation of their urban surroundings.

A. an affirmation of

B. a validation of

C. a reaction to

D. an amplification of

E. a celebration of

ANSWER: C

Explanation:

The correct completion is "a reaction to." The sentence describes community gardens appearing in neighborhoods characterized by "filth and desolation," establishing a contrast between neglected urban conditions and residents' efforts to create green, productive, attractive spaces. A reaction is a response to a condition or event, so the phrase accurately conveys that the gardens arise in response to the undesirable state of the surrounding environment. It also produces the idiomatic and grammatically complete construction "as a reaction to the filth and desolation." In context, the gardens represent a community response that can improve local surroundings, offer access to plants or food, and strengthen neighborhood stewardship. The College Board's Reading and Writing materials emphasize using surrounding words and the

overall logic of a sentence to select the precise word or phrase that best fits the context. Here, the negative description of the neighborhoods supplies the key contextual clue: the gardens are a response to those conditions. See the College Board overview of PSAT Reading and Writing and its official Reading and Writing study guide.

QUESTION NO: 61

Oliver Goldsmith (1730–1774) wrote criticism, plays, novels, biographies, travelogues, and nearly every other conceivable kind of composition. This good-humored essay is from a series published in the Public Ledger and then in book form as The Citizen of the World (1762).

Were we to estimate the learning of the English by the number of books that are every day published among them, perhaps no country, not even China itself, could equal them in this particular. I

have reckoned not less than twenty-three new books published in one day, which, upon computation, makes eight thousand three hundred and ninety-five in one year. Most of these are not confined to one single science, but embrace the whole circle. History, politics, poetry, mathematics, metaphysics, and the philosophy of nature, are all comprised in a manual no larger than that in which our children are taught the letters. If then, we suppose the learned of England to read but an eighth part of the works which daily come from the press and surely non can pretend to learning upon less easy terms), at this rate every scholar will read a thousand books in one year. From such a calculation, you may conjecture what an amazing fund of literature a man must be possessed of, who thus reads three new books every day, not one of which but contains all the good things that ever were said or written.

And yet I know not how it happens, but the English are not, in reality so learned as would seem from this calculation. We meet but few who know all arts and sciences to perfection; whether it is that the generality are incapable of such extensive knowledge, or that the authors of those books are not adequate instructors. In China, the Emperor himself takes cognizance of all the doctors in the kingdom who profess authorship. In England, every man may be an author, that can write; for they have by law a liberty, not only of saying what they please, but of being also as dull as they please.

Yesterday, as I testified to my surprise, to the man in black, where writers could be found in sufficient number to throw off the books I saw daily crowding from the press. I at first imagined that their learned seminaries might take this method of instructing the world. But, to obviate this objection, my companion assured me that the doctors of colleges never wrote, and that some of them had actually forgot their reading. “But if you desire,” continued he, “to see a collection of authors, I fancy I can introduce you to a club, which assembles every Saturday at seven . . . .” I accepted his invitation; we walked together, and entered the house some time before the usual hour for the company assembling. My friend took this opportunity of letting me into the characters of the principal members of the club . . .

“The first person,” said he, “of our society is Doctor Nonentity, a metaphysician. Most people think him a profound scholar, but, as he seldom speaks, I cannot be positive in that particular; he generally spreads himself before the fire, sucks his pipe, talks little, drinks much, and is reckoned very good company. I’m told he writes indexes to perfection: he makes essays on the origin of evil, philosophical inquiries upon any subject, and draws up an answer to any book upon 24 hours’ warning . . . .” Goldsmith first assumes that English writers come from

A. foreign lands

B. seminaries

C. China

D. clubs

E. the press

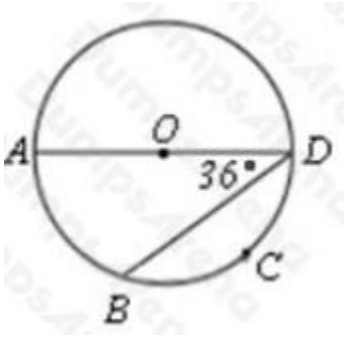
ANSWER: B

Explanation:

seminaries is correct because the narrator explicitly describes his initial explanation for the extraordinary number of books appearing from English presses. Wondering where enough writers could possibly be found to produce so many works, he says, “I at first imagined that their learned seminaries might take this method of instructing the world.” The phrase “at first imagined” directly signals that this is his original assumption. In context, “learned seminaries” means England’s institutions of advanced learning—especially colleges and their scholars—rather than a religious claim about seminaries in the modern narrow sense. This assumption also supports Goldsmith’s satirical setup: the narrator begins with a seemingly reasonable belief that a nation’s abundant publishing must be supplied by its formally educated intellectual institutions. The passage

later develops the comic contrast between that expectation and the social world of prolific authors he is shown. Goldsmith's essay is part of *The Citizen of the World*, a satirical collection that frequently uses an outsider's perspective to comment on English literary and social life. See the text in Project Gutenberg's edition of The Citizen of the World and background on Goldsmith at Encyclopaedia Britannica.

QUESTION NO: 62



In the figure above, AD is a diameter of the circle with center O and AO = 5. What is the length of arc BCD?

A. π/2

B. π

C. 3π/2

D. 3 π

E. 7π/2

ANSWER: D

Explanation:

The length of arc BCD is **3 π**. Because AO is a radius, the circle's radius is 5, so the circumference is 2πr = 10π. Draw the radius from the center to point B. The two sides from the center to B and D are radii, so they are congruent. Thus, the triangle formed by B, O, and D is isosceles. The diagram gives each base angle as 36°, making the central angle that intercepts arc BCD equal to 180° − 36° − 36° = 108°.

An arc's length is the same fraction of the full circumference as its central angle is of 360°. Therefore, arc BCD has length (108/360)(10π). Since 108/360 simplifies to 3/10, the arc length is (3/10)(10π) = 3π. This uses the standard relationship between a central angle and its intercepted arc, together with the circumference formula. For a review of circle arc-length relationships, see Khan Academy's arc length and sector area lesson and the College Board PSAT Math overview.

QUESTION NO: 63

One inch equals 2.54cm, how many centimeters tall is a 76inch man?

A. 20cm

B. 29.92cm

C. 193.04cm

D. 300.04cm

E. 593.04cm

ANSWER: C

Explanation:

The correct answer is **193.04cm**. To convert a height from inches to centimeters, multiply the number of inches by the conversion factor of 2.54 centimeters per inch. Here, the calculation is 76 × 2.54. Multiplying 2.54 by 70 gives 177.8, and multiplying 2.54 by the remaining 6 gives 15.24. Adding those products gives 177.8 + 15.24 = 193.04. Therefore, a person who is 76 inches tall is 193.04 centimeters tall. This uses the exact international definition of the inch: one inch is exactly 2.54 centimeters, so no rounding is needed for this result. The conversion factor is documented by the U.S. National Institute of Standards and Technology in its guidance on the International System of Units: NIST—SI Units of Length. A general conversion reference is also available from NIST—Unit Conversion.

QUESTION NO: 64

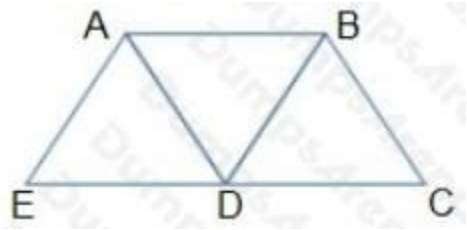


Figure not to scale.

In the figure above, AB = AD = AE = BD = BC = CD = DE = 1. What is the distance from A to C?

A. 2
B. $\sqrt{3}$
C. $\sqrt{2}$
D. $\frac{1}{2}$
E. 1

A. 1

B. $\sqrt{3}$

C. $\sqrt{2}$

D. 2

E. 3

ANSWER: B

Explanation:

$\sqrt{3}$ is correct. The given unit-length segments make triangle AED equilateral, so its altitude from A to ED is perpendicular to ED and bisects ED. If F is the foot of that altitude, then FD = 1/2 and AF = $\sqrt{3}/2$, using the 30°–60°–90° triangle relationship. The diagram places D between F and C, and DC = 1, so FC = FD + DC = 1/2 + 1 = 3/2. Thus triangle AFC is a right triangle with legs AF = $\sqrt{3}/2$ and FC = 3/2. Applying the Pythagorean theorem gives $AC^2 = (\sqrt{3}/2)^2 + (3/2)^2 = 3/4 + 9/4 = 3$. Since a distance is positive, AC = $\sqrt{3}$. This solution uses the altitude properties of an equilateral triangle and the Pythagorean theorem, both standard relationships tested in SAT/PSAT geometry. For a review of the Pythagorean theorem and its application to right triangles, see Khan Academy's Pythagorean theorem lesson. The College Board's SAT Math overview also identifies geometry and trigonometry skills as part of the assessed mathematics content.

QUESTION NO: 65

When Rob became interested in electricity, his clear-headed father considered the boy's fancy to be instructive as well as amusing; so he heartily encouraged his son, and Rob never lacked batteries, motors, or supplies of any sort that his experiments might require.

He fitted up the little back room in the attic as his workshop, and from thence, a network of wires soon ran throughout the house. Not only had every outside door its electric bell, but every window was fitted with a burglar alarm; moreover, no one could cross the threshold of any interior room without registering the fact in Rob's work- shop. The gas was lighted by an electric fob; a chime, connected with an erratic clock in the boy's room, woke the servants at all hours of the night and caused the cook to give warning; a bell rang whenever the postman dropped a letter into the box; there were bells, bells, bells everywhere, ringing at the right time, the wrong time and all the time. And there were telephones in the different rooms, too, through which Rob could call up the different members of the family just when they did not wish to be disturbed.

His mother and sisters soon came to vote the boy's scientific craze a nuisance; but his father was delighted with these evidences of Rob's skill as an electrician and insisted that he be allowed perfect freedom in carrying out his ideas.

The author's purpose for the second paragraph is:

A. to show how ingenious Rob was

B. to evidence that Rob lacked for no supplies.

C. to represent just how far Rob's experiments went

D. to fully develop the latitude father gave and the control he had.

E. to show just how intrusive the experiments were, much to the chagrin of all inhabitants

ANSWER: C

Explanation:

The correct answer is *to represent just how far Rob's experiments went*. The second paragraph catalogs the many ways Rob has extended his electrical projects beyond his attic workshop and into virtually every part of the home. The network of wires reaches throughout the house; doors, windows, rooms, lighting, mail delivery, and communication between family members are all affected. This accumulation of concrete examples establishes the extraordinary scope of his work.

The paragraph's repeated details, especially the sequence involving bells that ring at appropriate and inappropriate times, create the sense that Rob's inventions have become pervasive. Rather than merely stating that he experiments often, the author illustrates how thoroughly his experiments have altered the household's ordinary routines. That extensive description also prepares readers for the next paragraph, which reports the family's reaction to the disruption. In questions about an author's purpose, readers should identify what the paragraph as a whole accomplishes through its details, structure, and emphasis. The College Board recommends using textual evidence to determine central ideas and rhetorical purpose in Reading and Writing questions. See the PSAT Reading and Writing overview and the official practice-test resources.

QUESTION NO: 66

7 1/2 – 5 3/8 =

A. 1 1/2

B. 1 2/3

C. 2 1/8

D. 3 1/4

E. 3

ANSWER: C

Explanation:

The correct result is **2 1/8**. To subtract mixed numbers, first express the fractional parts using a common denominator. The fraction 1/2 is equivalent to 4/8, so the expression becomes 7 4/8 minus 5 3/8. Because both fractional parts are now measured in eighths, subtract the whole-number parts and the fractional parts directly: 7 minus 5 equals 2, and 4/8 minus 3/8 equals 1/8. Combining those results gives 2 1/8. This can also be checked by converting both mixed numbers to improper fractions: 7 1/2 equals 60/8, while 5 3/8 equals 43/8. Their difference is 17/8, which converts to 2 1/8. Using equivalent fractions with a shared denominator is the standard approach for addition and subtraction involving unlike fractional denominators. For further review of subtracting mixed numbers and finding common denominators, see Khan Academy's mixed-number subtraction lesson and Math is Fun's fraction addition and subtraction guide.

QUESTION NO: 67

41% equals:

A. 4.1

B. .41

C. .041

D. .0041

E. .00415

ANSWER: B

Explanation:

The correct answer is **.41**. The percent sign means "per hundred," so 41% represents 41 out of every 100 equal parts. Written as a fraction, this is 41/100. Dividing 41 by 100 moves the decimal point two places to the left, giving 0.41, which may also be written as .41. For example, if an item costs $100, then 41% of the cost is $41; the corresponding decimal multiplier is 0.41 because 100 × 0.41 = 41. This conversion is essential when using percentages in calculations: convert a percent to a decimal by dividing by 100, then multiply by the relevant quantity. The College Board's SAT Suite materials identify percentages as ratios expressed per 100 and include converting among fractional, decimal, and percent forms as a foundational math skill. See the College Board SAT Math overview and the Khan Academy guide to decimal and percent conversions.

QUESTION NO: 68

What number is 5% of 2000?

A. 50

B. 100

C. 150

D. 200

E. 250

ANSWER: B

Explanation:

The correct answer is **100**. "Percent" means "per hundred," so 5% can be written as the decimal 0.05 or as the fraction 5/100. To find 5% of 2000, multiply the whole quantity by the percent expressed as a decimal: 2000 × 0.05 = 100. Equivalently, first find 1% of 2000 by dividing by 100, which gives 20; then multiply 20 by 5 to find 5%, giving 100. This is a standard percentage calculation: convert the percentage to a decimal and multiply by the original amount. For additional guidance on calculating percentages, see Khan Academy's percent word-problem guide and Math is Fun's explanation of percentages.

QUESTION NO: 69

Assume that x and y are integers and that x > y. The value of x6 – y6 must be divisible by all of the following EXCEPT:

A. x2 + y2

B. x – y

C. x + y

D. x2 – y2

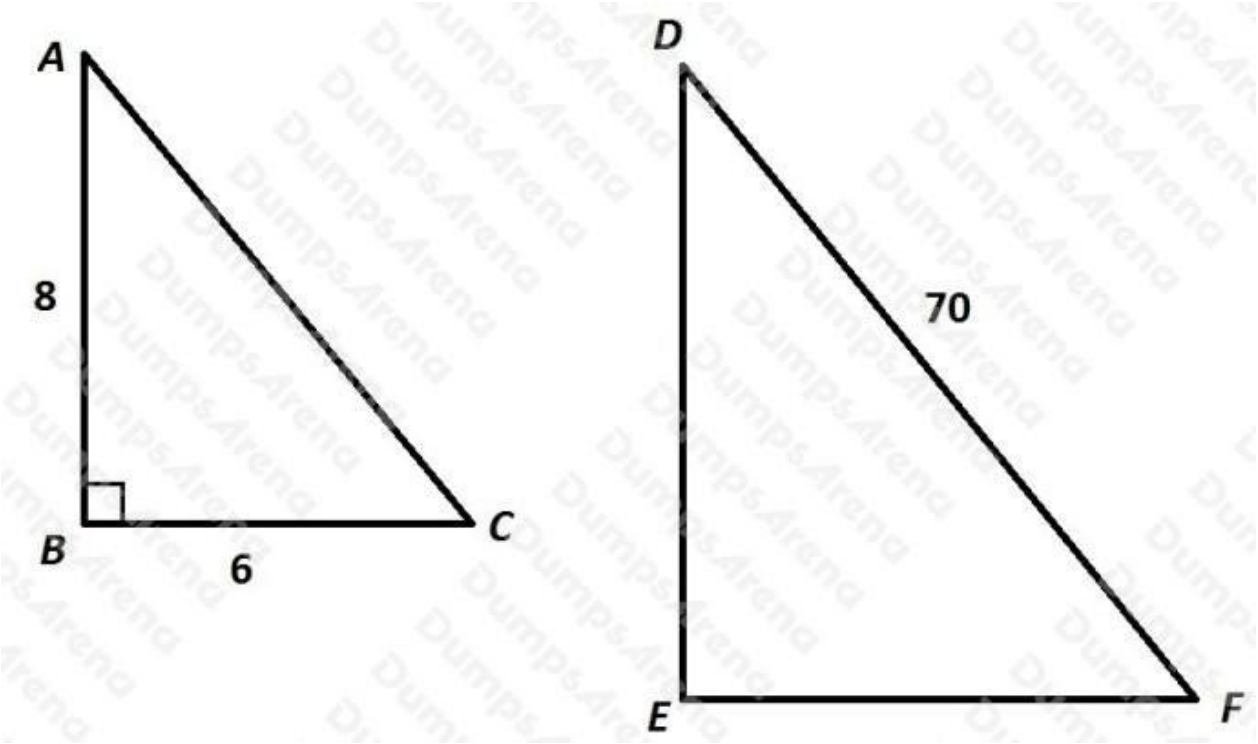
E. x3 – y3

ANSWER: A

Explanation:

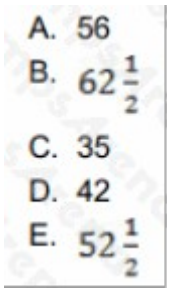
x2 + y2 is the expression that is not guaranteed to divide the difference. The relevant algebraic factorization is x6 − y6 = (x3 − y3)(x3 + y3). Factoring the difference and sum of cubes further gives (x − y)(x + y)(x2 + xy + y2)(x2 − xy + y2). Thus, the difference contains the factors x − y, x + y, and x3 − y3. Since the product (x − y)(x + y) equals x2 − y2, that expression is also a factor of x6 − y6. However, x2 + y2 does not appear as a factor in this factorization and does not divide the value for every permitted pair of integers. For example, when x = 2 and y = 1, the difference is 2^6 − 1^6 = 63, while x2 + y2 = 5; 63 is not divisible by 5. This establishes that x2 + y2 is the required exception. The result follows from standard difference-of-powers identities, which are foundational algebra skills assessed in the PSAT/SAT math framework. See the College Board SAT Math overview and OpenStax's sum and difference of cubes reference.

QUESTION NO: 70



Note: Figures NOT drawn to scale.

Refer to the above figure. Given that ΔABC ~ ΔDEF, evaluate DE.



A. 56

B. Option B

C. Option C

D. Option D

E. Option E

ANSWER: A

Explanation:

56 is correct. First, use the Pythagorean theorem on the smaller right triangle. Its legs measure 6 and 8, so the hypotenuse AC is $\sqrt{(6^2 + 8^2)} = \sqrt{100} = 10$. Because $\Delta ABC \sim \Delta DEF$, the vertex order establishes the corresponding sides: AC corresponds to DF, and AB corresponds to DE. The diagram gives DF as 70, so the scale factor from ΔABC to ΔDEF is $70 \div 10 = 7$. Since AB measures 8, multiply that corresponding side length by the same scale factor: $DE = 8 \times 7 = 56$. Similar figures preserve proportional relationships among all corresponding side lengths, so applying one consistent scale factor is valid. This use of the Pythagorean theorem and proportional side lengths is a standard approach for right triangles and similar triangles. See the Khan Academy overview of similar triangles and the Pythagorean theorem reference.

QUESTION NO: 71

Adapted from “Darwin’s Predecessors” by J. Arthur Thomson in Evolution in Modern Thought (1917 ed.)

In seeking to discover Darwin's relation to his predecessors, it is useful to distinguish the various services which he rendered to the theory of organic evolution.

As everyone knows, the general idea of the doctrine of descent is that the plants and animals of the present day are the lineal descendants of ancestors on the whole somewhat simpler, that these again are descended from yet simpler forms, and so on backwards towards the literal "Protozoa" and "Protophyta" about which we unfortunately know nothing. Now no one supposes that Darwin originated this idea, which in rudiment at least is as old as Aristotle. What Darwin did was to make it current intellectual coin. He gave it a form that commended itself to the scientific and public intelligence of the day, and he won widespread conviction by showing with consummate skill that it was an effective formula to work with, a key which no lock refused. In a scholarly, critical, and preeminently fair-minded way, admitting difficulties and removing them, foreseeing objections and forestalling them, he showed that the doctrine of descent supplied a modal interpretation of how our present-day fauna and flora have come to be.

In the second place, Darwin applied the evolution-idea to particular problems, such as the descent of man, and showed what a powerful tool it is, introducing order into masses of uncorrelated facts, interpreting enigmas both of structure and function, both bodily and mental, and, best of all, stimulating and guiding further investigation. But here again it cannot be claimed that Darwin was original. The problem of the descent or ascent of man, and other particular cases of evolution, had attracted not a few naturalists before Darwin's day, though no one [except Herbert Spencer in the psychological domain (1855)] had come near him in precision and thoroughness of inquiry.

In the third place, Darwin contributed largely to a knowledge of the factors in the evolution-process, especially by his analysis of what occurs in the case of domestic animals and cultivated plants, and by his elaboration of the theory of natural selection, which Alfred Russel Wallace independently stated at the same time, and of which there had been a few previous suggestions of a more or less vague description. It was here that Darwin's originality was greatest, for he revealed to naturalists the many different forms – often very subtle – which natural selection takes, and with the insight of a disciplined scientific imagination he realized what a mighty engine of progress it has been and is.

Which of the following is a reason for how Darwin's ideas provided a powerful tool?

A. They provided the complete history of life on earth.

B. They helped to reorganize the sciences along historical lines.

C. None of the other answers

D. They gave the most details about how the human species differs from apes.

E. They enabled scientists to see certain groups of data as single, intelligible wholes.

ANSWER: E

Explanation:

They enabled scientists to see certain groups of data as single, intelligible wholes. The passage explicitly says that Darwin's application of evolutionary thought was a powerful tool because it introduced "order into masses of uncorrelated facts," interpreted difficult questions about bodily and mental structure and function, and stimulated further research. In other words, the evolutionary framework allowed scientists to connect observations that had previously seemed isolated or unrelated. Rather than treating facts about organisms, their structures, behaviors, and histories as separate pieces of information, investigators could understand them together through the idea of descent and evolutionary change. "Single, intelligible wholes" accurately restates this organizing function: Darwin's ideas made disparate evidence meaningful within one coherent explanatory framework. This interpretation is also consistent with Darwin's use of evidence from multiple fields—including variation under domestication, comparative anatomy, embryology, and geographic distribution—to support descent with modification. Readers can examine Darwin's presentation of this interconnected evidence in On the Origin of Species at Project Gutenberg and consult the Darwin Correspondence Project for historical materials on the development and reception of his scientific work.

QUESTION NO: 72

You leave on a road trip driving due North from Savannah, Georgia, at 8am. You drive for 5 hours at 60mph and then head due East for 2 hours at 50mph. After those 7 hours, how far are you Northeast from Savannah as the crow flies (in miles)?

A. √10000

B. √80000

C. √100000

D. √90000

E. √70000

ANSWER: C

Explanation:

√**100000** is correct. First, determine the distance traveled in each perpendicular direction using distance = rate × time. Driving north for 5 hours at 60 miles per hour gives a northward distance of 300 miles. Then, driving east for 2 hours at 50 miles per hour gives an eastward distance of 100 miles. These northward and eastward movements form the two legs of a right triangle, while the straight-line distance from Savannah is the hypotenuse. Apply the Pythagorean theorem: $d^2 = 300^2 + 100^2 = 90{,}000 + 10{,}000 = 100{,}000$. Therefore, d = √100000 miles. This is approximately 316.2 miles, but the exact radical form requested by the choices is √100000. The Pythagorean theorem is used whenever two perpendicular distances are known and the direct distance between their endpoints is needed. For additional review of this relationship, see Khan Academy's Pythagorean theorem review and the College Board SAT Math overview.

QUESTION NO: 73

What is a possible value for x in x2 – 12x + 36 = 0?

A. 2

B. –6

C. There is not enough information

D. 6

ANSWER: D

Explanation:

The possible value is **6**. Interpreting “x2” as x squared, the equation is $x^2 - 12x + 36 = 0$. This trinomial is a perfect-square expression because 36 is 6^2 and the middle term, $-12x$, equals $-2 \cdot 6 \cdot x$. Therefore, it factors as $(x - 6)^2 = 0$. A square is zero only when the quantity being squared equals zero, so $x - 6 = 0$. Adding 6 to both sides gives $x = 6$. Although the factor appears twice, both factors produce the same solution; this is called a repeated root, or a solution with multiplicity two. Substitution confirms the result: $6^2 - 12(6) + 36 = 36 - 72 + 36 = 0$. Thus, 6 is a possible—and in this case the only—value of x that satisfies the equation. For additional guidance on solving quadratic equations by factoring, see Khan Academy’s factoring lesson and the OpenStax quadratic-equations section.

QUESTION NO: 74

"The Place of Lesion Studies in Neuroscience" by Samantha Winter (2013)

It’s easy to forget that the study of neuroscience originated from non-normalized, non-statistically appraised methods like lesion studies. It’s equally easy, with the advent of sophisticated technology, to render such a method obsolete. A small group of neuroscientists today make a case for the reinstitution of lesion studies – the study of abnormal brains with damaged regions in order to better understand the brain – into the twenty-first-century cognitive neuroscience realm. Their suggestion is bold, but their argument is justified.

Cognitive neuroscientists advocate for the use of convergent methods. Many of them argue that with the limitations of our existing techniques, convergent evidence is imperative for sound research. If this is the case, why ignore a method that has potential for implying causality in a domain dominated by correlational research? Rather than advocating for a single method, neuroscientists should take their own advice and use convergent techniques. Sound research should combine a variety of techniques to examine both causal relationships and overcome the individual shortcomings of each method through the use of many.

Lesion studies are also significantly more beneficial now than they were in earlier times. Neuroimaging methods have enhanced our understanding of what contributes to the brain problems most often encountered, and more refined experiments have been developed to confirm the findings from the more unreliable lesion studies. This transformation allows lesion studies to be included alongside the other systems as a mechanism for understanding the human brain.

In the last sentence of the first paragraph, "bold" most closely means _____.

A. daring

B. extruding

C. emphasized

D. cunning

E. impertinent

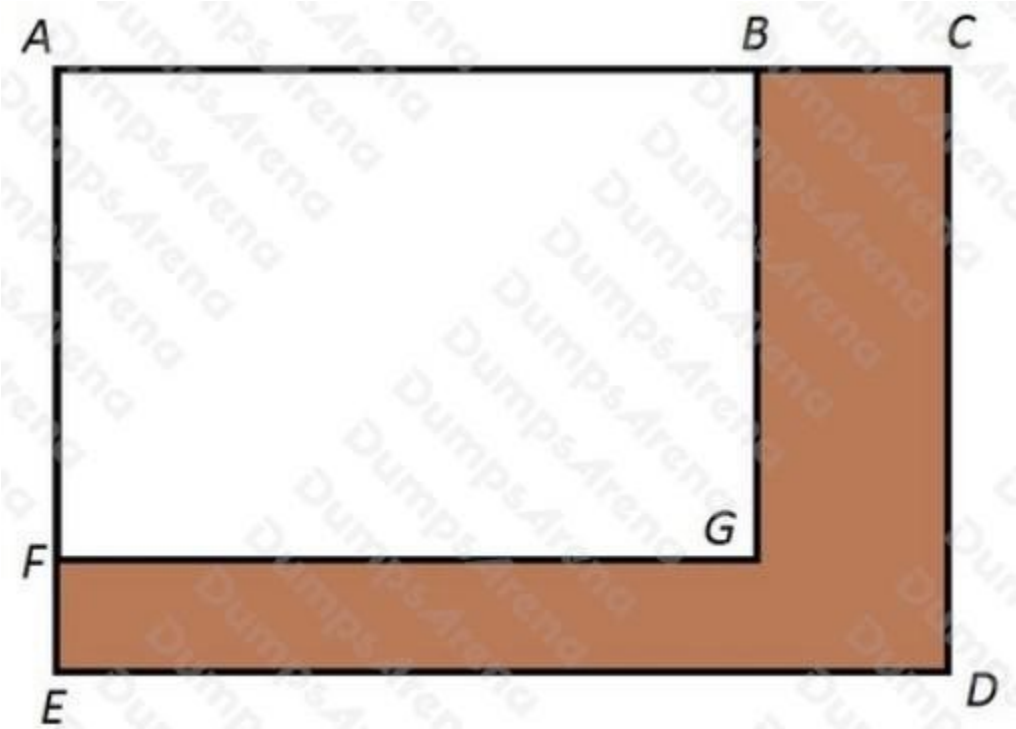
ANSWER: A

Explanation:

“daring” is correct because the passage describes a group of neuroscientists proposing that lesion studies be brought back into modern cognitive neuroscience. This proposal challenges a tendency to treat lesion studies as obsolete because newer technology and more statistically standardized methods are available. In that context, calling the suggestion “bold” means that it is courageous, ambitious, or willing to depart from the prevailing approach. The author immediately follows this description by saying that the group’s argument is justified, reinforcing that the proposal is substantial and defensible despite

being somewhat unconventional. The surrounding paragraphs support this meaning: the author argues that neuroscience should use convergent methods and that lesion studies can contribute evidence about causal relationships, especially when combined with modern neuroimaging and refined experimental methods. Thus, “bold” characterizes the willingness to advance a potentially controversial or unexpected recommendation, not the physical appearance of text. Standard dictionary definitions likewise identify “bold” as showing a willingness to take risks or being confident and courageous. See the Cambridge Dictionary definition of “bold” and the Merriam-Webster definition of “bold”.

QUESTION NO: 75



Note: Figure NOT drawn to scale.

Refer to the above figure.

Rect ABGF ~ Rect ACDE AB = 7 and BC = 3.

What percent of Rect ACDE has been shaded brown?

A. $57\frac{1}{7}\%$
B. Insufficient information is given to answer the problem.
C. 30%
D. 49%
E. 51%

A. Option A

B. Option B

C. Option C

D. 51%

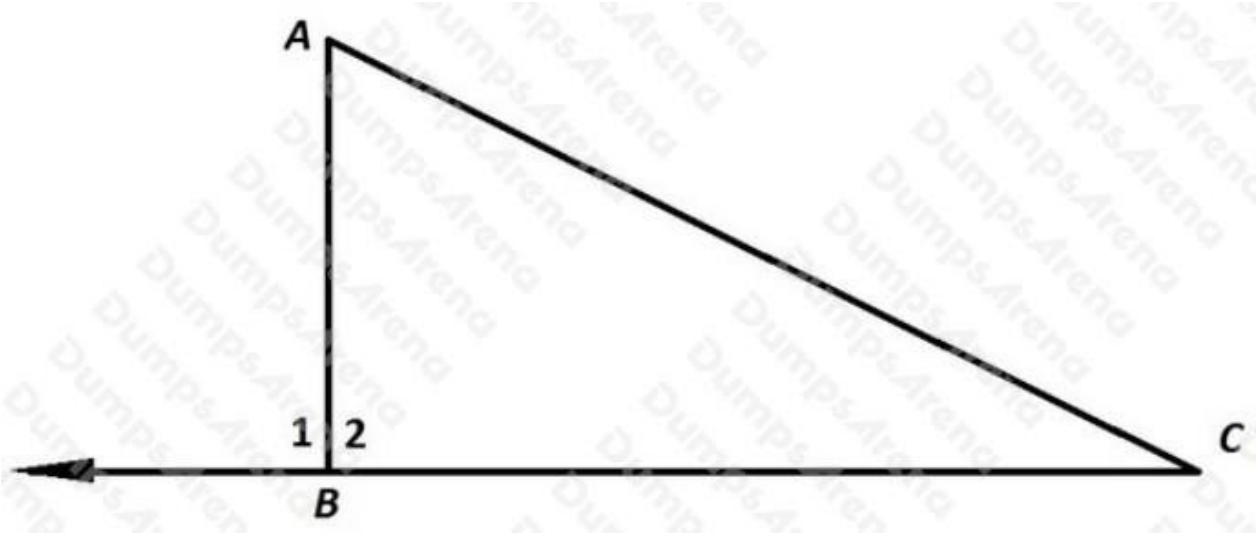
E. Option E

ANSWER: D

Explanation:

51% is correct. Because point B lies on segment AC, the full corresponding side of the larger rectangle is AC = AB + BC = 7 + 3 = 10. Since rectangles ABGF and ACDE are similar, their corresponding side-length ratio, smaller to larger, is 7/10. Areas of similar figures scale by the square of the corresponding side-length ratio, so the area of rectangle ABGF is $(7/10)^2$ = 49/100, or 49%, of the area of rectangle ACDE. The brown region is the portion of the larger rectangle that remains after the smaller rectangle is removed. Therefore, its area is 100% − 49% = 51% of rectangle ACDE. This uses the standard similarity principle that a scale factor applies to lengths, while its square applies to areas. The fact that the figure is not drawn to scale does not affect the calculation; the given lengths and the stated similarity determine the required ratio. See the College Board's PSAT/NMSQT math overview and Khan Academy's scale factor and area reference.

QUESTION NO: 76



Refer to the above figure. You are given that AB = 5 and BC = 12. Which of the following statements would be sufficient to prove that angle 2 is a right angle, given what is already known?

I) AC = 13

II) angle BAC and angle BCA are both acute

III) angle 1 is a right angle

A. I and II only

B. None of these

C. II and III only

D. I, II, and III

E. I and III only

ANSWER: E

Explanation:

I and III only is correct. If AC = 13, triangle ABC has side lengths 5, 12, and 13. These lengths satisfy the converse of the Pythagorean Theorem because $5^2 + 12^2 = 25 + 144 = 169$ and $13^2 = 169$. Therefore, the angle opposite the side of length 13, which is angle 2 at B, must measure 90 degrees. This establishes that angle 2 is a right angle. The converse theorem is summarized by Math Is Fun's Pythagorean triples reference and follows directly from the Pythagorean relationship for right triangles.

Statement III is also sufficient because angle 1 and angle 2 are adjacent angles formed by intersecting lines and make a linear pair. Linear-pair angles are supplementary, so their measures total 180 degrees. If angle 1 measures 90 degrees,

angle 2 must measure 180 − 90 = 90 degrees as well. Thus, knowing angle 1 is right proves angle 2 is right. The supplementary-angle property of a linear pair is described at Math Open Reference.

QUESTION NO: 77

Adapted from “Introduced Species That Have Become Pests” in Our Vanishing Wild Life, Its Extermination and Protection by William Temple Hornaday (1913)

The man who successfully transplants or "introduces" into a new habitat any persistent species of living thing assumes a very grave responsibility. Every introduced species is doubtful gravel until panned out. The enormous losses that have been inflicted upon the world through the perpetuation of follies with wild vertebrates and insects would, if added together, be enough to purchase a principality. The most aggravating feature of these follies in transplantation is that never yet have they been made severely punishable. We are just as careless and easygoing on this point as we were about the government of the Yellowstone Park in the days when Howell and other poachers destroyed our first national bison herd, and when caught red-handed – as Howell was, skinning seven Park bison cows – could not be punished for it, because there was no penalty prescribed by any law. Today, there is a way in which any revengeful person could inflict enormous damage on the entire South, at no cost to himself, involve those states in enormous losses and the expenditure of vast sums of money, yet go absolutely unpunished!

The gypsy moth is a case in point. This winged calamity was imported at Maiden, Massachusetts, near Boston, by a French entomologist, Mr. Leopold Trouvelot, in 1868 or 69. History records the fact that the man of science did not purposely set free the pest. He was endeavoring with live specimens to find a moth that would produce a cocoon of commercial value to America, and a sudden gust of wind blew out of his study, through an open window, his living and breeding specimens of the gypsy moth. The moth itself is not bad to look at, but its larvae is a great, overgrown brute with an appetite like a hog. Immediately Mr. Trouvelot sought to recover his specimens, and when he failed to find them all, like a man of real honor, he notified the State authorities of the accident. Every effort was made to recover all the specimens, but enough escaped to produce progeny that soon became a scourge to the trees of Massachusetts. The method of the big, nastylooking mottled-brown caterpillar was very simple. It devoured the entire foliage of every tree that grew in its sphere of influence.

The gypsy moth spread with alarming rapidity and persistence. In course of time, the state authorities of Massachusetts were forced to begin a relentless war upon it, by poisonous sprays and by fire. It was awful! Up to this date (1912) the New England states and the United States Government service have expended in fighting this pest about $7,680,000!

The spread of this pest has been retarded, but the gypsy moth never will be wholly stamped out. Today it exists in Rhode Island, Connecticut, and New Hampshire, and it is due to reach New

York at an early date. It is steadily spreading in three directions from Boston, its original point of departure, and when it strikes the State of New York, we, too, will begin to pay dearly for the Trouvelot experiment.

Based on the first paragraph, the author would be most likely to support _____.

A. introducing damaging invasive species to the South

B. a law severely punishing those who introduce invasive species that damage the environment

C. granting Howell clemency for his actions

D. keeping bison out of Yellowstone National Park

E. an effort to catalogue the exact amount of money invasive species have cost the United States

ANSWER: B

Explanation:

The author would most likely support **“a law severely punishing those who introduce invasive species that damage the environment.”** The first paragraph presents introducing a persistent species into a new habitat as an act carrying “very grave responsibility,” particularly because such introductions can produce enormous environmental and financial harm. Most directly, the author calls it “the most aggravating feature” that these harmful acts had “never yet” been made “severely punishable.” This explicit criticism of the absence of legal penalties strongly supports an inference that he favors legislation imposing serious punishment when introductions cause environmental damage.

The example of the Yellowstone bison poaching reinforces this position. The author is frustrated that a person caught committing a destructive act could not be punished because no law prescribed a penalty. He then warns that someone could

deliberately cause severe harm across the South while remaining unpunished. Together, these statements establish that the author sees enforceable legal consequences as necessary to deter and address serious ecological damage. The later gypsy-moth account illustrates the kind of widespread destruction and public expense that motivates this view. Historical context for Hornaday's conservation writing is available through the Biodiversity Heritage Library's digitized edition of *Our Vanishing Wild Life*. The modern importance of preventing harmful introduced organisms is also reflected by the USDA APHIS plant-pest program.

QUESTION NO: 78

Adapted from A Practical Treatise on the Hive and Honey-Bee by Lorenzo Lorraine Langstroth (1857 ed.)

Of all the numerous enemies of the honey-bee, the Bee-Moth (Tinea mellonella), in climates of hot summers, is by far the most to be dreaded. So widespread and fatal have been its ravages in this country that thousands have abandoned the cultivation of bees in despair, and in districts which once produced abundant supplies of the purest honey, bee-keeping has gradually dwindled down into a very insignificant pursuit. Contrivances almost without number have been devised to defend the bees against this invidious foe, but still it continues its desolating inroads, almost unchecked, laughing as it were to scorn at all the so-called "moth-proof" hives, and turning many of the ingenious fixtures designed to entrap or exclude it into actual aids and comforts in its nefarious designs.

I should feel but little confidence in being able to reinstate bee-keeping in our country into a certain and profitable pursuit if I could not show the apiarian in what way he can safely bid defiance to the pestiferous assaults of this, his most implacable enemy. I have patiently studied its habits for years, and I am at length able to announce a system of management founded upon the peculiar construction of my hives, which will enable the careful bee-keeper to protect his colonies against the monster. The bee-moth infects our apiaries, just as weeds take possession of a fertile soil.

Before explaining the means upon which I rely to circumvent the moth, I will first give a brief description of its habits.

Swammerdam, towards the close of the seventeenth century, gave a very accurate description of this insect, which was then called by the very expressive name of the "bee-wolf." He has furnished good drawings of it, in all its changes, from the worm to the perfect moth, together with the peculiar webs or galleries that it constructs and from which the name of Tinea galleria or "gallery moth" has been given to it by some entomologists. He failed, however, to discriminate between the male and female, which, because they differ so much in size and appearance, he supposed to be two different species of the wax-moth. It seems to have been a great pest in his time, and even Virgil speaks of the "dirum tineæ genus," the dreadful offspring of the moth; that is the worm.

This destroyer usually makes its appearance about the hives in April or May, the time of its coming depending upon the warmth of the climate or the forwardness of the season. It is seldom seen on the wing (unless startled from its lurking place about the hive) until towards dark, and is evidently chiefly nocturnal in its habits. In dark cloudy days, however, I have noticed it on the wing long before sunset, and if several such days follow in succession, the female, oppressed with the urgent necessity of laying her eggs, may be seen endeavoring to gain admission to the hives. The female is much larger than the male, and "her color is deeper and more inclining to a darkish gray, with small spots or blackish streaks on the interior edge of her upper wings." The color of the male inclines more to a light gray; they might easily be mistaken for different species of moths. These insects are surprisingly agile, both on foot and on the wing. The motions of a bee are very slow in comparison. "They are," says Reaumur, "the most nimble-footed creatures that I know." "If the approach to the apiary be observed of a moonlight evening, the moths will be found flying or running round the hives, watching an opportunity to enter, whilst the bees that have to guard the entrances against their intrusion will be seen acting as vigilant sentinels, performing continual rounds near this important post, extending their antenna to the utmost, and moving them to the right and left alternately. Woe to the unfortunate moth that comes within their reach!" "It is curious," says Huber, "to observe how artfully the moth knows how to profit, to the disadvantage of the bees, which require much light for seeing objects; and the precautions taken by the latter in reconnoitering and expelling so dangerous an enemy."

Which of these most accurately restates the meaning of "The bee-moth infects our apiaries, just as weeds take possession of a fertile soil," a line found in the second paragraph?

A. None other than gardeners and bee keepers can comprehend the devastations of the moth.

B. The bee moth is nothing compared to the weed in fertile soil.

C. The description of the moth is not sufficient without considering its impact on a garden.

D. The impact of the bee moth on a hive is disproportionate to that of the weed on a garden.

E. The bee moth is to the bee keeper what the dandelion is to the gardener.

ANSWER: E

Explanation:

"The bee moth is to the bee keeper what the dandelion is to the gardener." accurately preserves the comparison in the passage. The author describes the bee-moth as a destructive pest that invades an apiary, damages a beekeeper's colonies, and is difficult to control. By saying that moths "infect" apiaries as weeds "take possession" of fertile soil, he compares two unwanted organisms that spread into a productive space and interfere with the work of the person maintaining it. A dandelion is a familiar example of a weed in a cultivated garden; likewise, the bee-moth is an unwanted intruder in a carefully tended hive. The restatement correctly matches the relationships on both sides of the simile: bee-moth to beekeeper and dandelion to gardener. It does not claim that the harms are unequal or introduce an unrelated point about who can understand the destruction. Instead, it conveys the author's central idea that the moth is a persistent, harmful nuisance to an apiarist just as a weed is to someone cultivating plants. This reading is also consistent with the treatise's broader discussion of wax-moths as serious hive pests in Langstroth's text and with the College Board's guidance that reading questions require selecting the choice that most precisely states a passage's meaning: SAT Reading and Writing.

QUESTION NO: 79

Notwithstanding much educated _____, even as we speak, there is no _____ relationship between current levels of hydrocarbon output and ozone deterioration.

A. speculation. . .tenuous

B. conjecture. . .proven

C. evidence. . .speculative

D. argument. . .rational

E. confusion. . .systematic

ANSWER: B

Explanation:

The correct completion is "conjecture. . .proven." An educated conjecture is an informed opinion or inference formed from available knowledge, rather than a conclusion established conclusively by evidence. Thus, the opening phrase acknowledges that well-informed people may have offered substantial thought or theorizing about the possible connection between hydrocarbon output and ozone deterioration. The phrase "even as we speak" reinforces that the issue remains unresolved at the present time. "No proven relationship" then supplies the logically appropriate contrast: despite this informed conjecture, the connection has not been demonstrated to the evidentiary standard required for proof. The completed sentence is coherent both grammatically and rhetorically because it distinguishes plausible, informed scientific thinking from a relationship that has been verified. This distinction reflects standard usage of conjecture as a proposition based on incomplete evidence and proven as established by evidence or argument. Merriam-Webster defines conjecture as inference from defective or presumptive evidence, while its definition of proven describes something established as true or valid by evidence or argument.

QUESTION NO: 80

Quadrilateral ABCD contains four ninety-degree angles. Which of the following must be true?

I. Quadrilateral ABCD is a rectangle.

II. Quadrilateral ABCD is a rhombus.III. Quadrilateral ABCD is a square.

A. I and II only

B. II only

C. II and III only

D. I, II, and III

E. I only

F. Quadrilateral ABCD is a rectangle.
II. Quadrilateral ABCD is a rhombus.III. Quadrilateral ABCD is a square.

ANSWER: E

Explanation:

The statement "I only" is correct because a rectangle is defined as a quadrilateral with four right angles. Since each of the four angles in quadrilateral ABCD measures 90 degrees, ABCD meets this definition and therefore must be a rectangle. This conclusion does not depend on the side lengths: a rectangle may have adjacent sides of different lengths while still having four right angles. For example, a quadrilateral with side lengths 4, 8, 4, and 8 and four 90-degree angles is a rectangle. The condition given establishes the angle property required for a rectangle, so statement I must always hold. Standard geometry definitions classify rectangles by their four right angles; see Math Open Reference: Rectangle. The College Board's SAT Suite mathematics materials also include geometric reasoning with quadrilaterals and their defining properties: College Board: SAT Math.

QUESTION NO: 81

Daria and Ashley start at the same spot and walk their two dogs to the park, taking different routes. Daria walks 1 mile north and then 1 mile east. Ashley walks her dog on a path going northeast that leads directly to the park. How much further does Daria walk than Ashley?

A. Cannot be determined

B. 1 mile

C. $2 + \sqrt{2}$ miles

D. $2 - \sqrt{2}$ miles

E. $\sqrt{2}$ miles

ANSWER: D

Explanation:

$2 - \sqrt{2}$ miles is correct. Daria travels along two perpendicular segments: 1 mile north followed by 1 mile east. Because distance traveled along a route is found by adding the lengths walked, her total distance is 1 + 1 = 2 miles.

Ashley starts and ends at the same locations as Daria but follows the direct northeast path. The north and east segments form the perpendicular sides of a right triangle, and Ashley's path is the hypotenuse. By the Pythagorean theorem, its length is $\sqrt{(1^2 + 1^2)} = \sqrt{2}$ miles. The Pythagorean theorem states that the square of a right triangle's hypotenuse equals the sum of the squares of its perpendicular side lengths; see Khan Academy's overview of the Pythagorean theorem.

The requested amount is how much farther Daria walks, so subtract Ashley's direct distance from Daria's route distance: $2 - \sqrt{2}$ miles. This result is positive because the direct hypotenuse of a right triangle is shorter than traveling along both perpendicular sides. A related explanation of distance and the Pythagorean relationship appears at Math is Fun: Pythagoras' Theorem.

QUESTION NO: 82

Once the newspaper _____ their sources were flawed, they _____ the target of their article by issuing a full retraction.

A. realized. . .exonerated

B. suspected. . .blasted

C. understood. . .haranged

D. rejected. . .issued

E. disproved. . .comforted

ANSWER: A

Explanation:

The sentence is completed most logically by “realized. . .exonerated.” The subordinating word “Once” establishes that the newspaper first came to recognize a fact: its sources were flawed. “Realized” precisely expresses this completed recognition, and it creates a clear cause-and-effect relationship with the action that follows. After discovering that the information supporting the article was unreliable, the newspaper issued a full retraction. A retraction withdraws a prior published claim, thereby clearing the person who was wrongly accused or implicated. In that context, “exonerated” means to free the target of blame or a charge, which is exactly the effect of publicly retracting an unsupported article. The completed sentence is coherent both grammatically and logically: recognition of flawed evidence leads directly to an action that clears the article’s target. Merriam-Webster defines realize as becoming aware of something and defines exonerate as clearing someone from an accusation or blame. Those definitions match the sequence and meaning required by the sentence.

QUESTION NO: 83

Sarah is twice as old as her youngest brother. If the difference between their ages is 15 years how old is her youngest brother?

A. 10

B. 15

C. 20

D. 25

E. 30

ANSWER: B

Explanation:

The correct answer is **15**. Let the youngest brother’s age be represented by x. The statement that Sarah is twice his age means that Sarah’s age is $2x$. Their age difference is therefore Sarah’s age minus her brother’s age: $2x - x$. This simplifies to x. Because the problem states that the difference is 15 years, the equation is $x = 15$. Thus, the youngest brother is 15 years old, and Sarah is 30 years old. Checking the relationship confirms the result: 30 is twice 15, and 30 minus 15 equals 15. This is a standard linear-relationships problem: translate each verbal statement into an algebraic expression, form an equation from the stated difference, and solve for the unknown age. For additional practice with representing verbal relationships using equations, see Khan Academy’s linear-equations resources. The College Board also describes the algebra skills assessed in its math questions at PSAT/NMSQT Math.

QUESTION NO: 84

Adapted from "Margaret Fuller and Mary Wollstonecraft" by George Eliot (1855)

There is a notion commonly entertained among men that an instructed woman, capable of having opinions, is likely to prove an unpractical yoke-fellow, always pulling one way when her husband wants to go the other, oracular in tone, and prone to give lectures. But surely, so far as obstinacy is concerned, your unreasoning animal is the most difficult of your creatures. For our own parts, we see no reason why women should be better kept under control rather than educated to be mans rational equal.

If you ask me what offices they [women] may fill, I reply – any. I do not care what case you put; let them be sea-captains, if you will. I do not doubt there are women well fitted for such an office, and, if so, I should be glad to welcome the Maid of

Saragossa. I think women need, especially at this juncture, a much greater range of occupation than they have, to rouse their latent powers. In families that I know, some little girls like to saw wood, others to use carpenters' tools. Where these tastes are indulged, cheerfulness and good-humor are promoted. Where they are forbidden, because "such things are not proper for girls," they grow sullen and mischievous.

Men pay a heavy price for their reluctance to encourage self-help and independent resources in women. The precious meridian years of many a man of genius have to be spent in the toil of routine, that an "establishment" may be kept up for a woman who can understand none of his secret yearnings, who is fit for nothing but to sit in her drawing-room like a doll-Madonna in her shrine. No matter. Anything is more endurable than to change our established formulae about women, or to run the risk of looking up to our wives instead of looking down on them. So men say of women, let them be idols, useless absorbents of previous things, provided we are not obliged to admit them to be strictly fellow-beings, to be treated, one and all, with justice and sober reverence.

The word “occupation” most nearly means _____.

A. activity

B. enumeration

C. distraction

D. invasion

E. mollification

ANSWER: A

Explanation:

The correct answer is **activity**. In this passage, the author argues that women should have opportunities to undertake many kinds of work, pursuits, and practical endeavors. The surrounding discussion makes this meaning clear: women may fill “any” office, may be qualified for roles such as sea captain, and should be allowed to explore interests such as sawing wood or using carpenters’ tools. Thus, a “greater range of occupation” means a broader variety of activities and pursuits through which women can develop their abilities.

This use reflects a standard sense of *occupation*: an activity in which someone is engaged, especially a regular pursuit, job, or field of work. The author’s point is not limited to paid employment; it includes meaningful hands-on interests and responsibilities that promote independence, competence, cheerfulness, and the awakening of “latent powers.” Therefore, among the available choices, **activity** most closely preserves the word’s meaning in context. For dictionary definitions that include a person’s principal business or activity, see Merriam-Webster’s entry for “occupation” and Cambridge Dictionary’s entry for “occupation”.

QUESTION NO: 85

Patrick was eager to start his diet until he realized how _____ his meals would be in order to reduce his caloric intake.

A. meager

B. disgusting

C. unpalatable

D. vegetarian

E. distasteful

ANSWER: A

Explanation:

The word *meager* correctly completes the sentence because it means deficient in quantity, scant, or noticeably small. A diet designed to reduce caloric intake commonly requires smaller portions or meals containing relatively little food, so Patrick’s concern is naturally that his meals will be meager. The sentence’s contrast between being “eager” and then reconsidering

the diet also supports this meaning: he anticipates the practical sacrifice of having less to eat. The wording does not provide a specific clue about flavor, ingredients, or a dietary category; instead, it focuses on the reduced amount of food associated with consuming fewer calories. Therefore, *meager* is the most precise vocabulary choice because it directly describes meals that are limited in size or quantity. Merriam-Webster defines “meager” as lacking desirable qualities such as size or quantity, and its usage examples commonly apply the term to limited portions, supplies, and amounts. See Merriam-Webster’s definition of “meager” and Cambridge Dictionary’s entry for “meagre”.

QUESTION NO: 86

If a match box is 0.17 feet long, what is its length in inches the most closely comparable to the following?

A. 5 1/16 inch highlighter

B. 3 1/8 inch jewelry box

C. 2 3/4 inch lipstick

D. 2 3/16 inch staple remover

E. 4 1/2 inch calculator

ANSWER: D

Explanation:

The correct comparison is **2 3/16 inch staple remover**. To convert feet to inches, use the exact customary-unit relationship that 1 foot equals 12 inches. Multiplying 0.17 foot by 12 inches per foot gives 2.04 inches. Because the question asks for the object whose length is *most closely comparable*, the result does not need to match exactly; instead, it should be compared with the listed measurements. A length of 2 3/16 inches is 2.1875 inches, which is very near 2.04 inches, differing by only 0.1475 inch. This makes it a reasonable real-world approximation for the match box’s converted length. The fractional form is also appropriate because the answer choices give everyday object lengths in inches and common fractional-inch measurements. The conversion factor used here is part of the standard U.S. customary measurement system: NIST: Units of Length. For additional guidance on converting customary length units, see Khan Academy: U.S. customary unit conversion.

QUESTION NO: 87

Karen and Dorothy were quite a pair of contrasts, for Karen was always emotional and agitated, while Dorothy had a rather _____ temperament.

A. cheerful

B. ebullient

C. stoic

D. zestful

E. sparkling

ANSWER: C

Explanation:

The correct completion is **stoic**. The sentence explicitly establishes a contrast: Karen is described as “always emotional and agitated,” so Dorothy’s temperament should be characterized by emotional restraint, composure, and an absence of outward agitation. “Stoic” describes a person who endures difficulty or experiences feelings without displaying much emotion or complaint. Thus, a stoic temperament naturally provides the intended contrast with Karen’s visibly emotional, unsettled demeanor.

The word comes from Stoicism, an ancient Greek and Roman philosophical tradition that emphasized reason, virtue, self-control, and resilience in response to circumstances beyond one’s control. In modern usage, “stoic” commonly describes

someone who appears calm and unemotional, especially under pressure. This meaning fits both the grammatical structure and the contextual clue supplied by the contrast word “while.” For dictionary definitions and background, see Merriam-Webster’s definition of “stoic” and the Stanford Encyclopedia of Philosophy overview of Stoicism.

QUESTION NO: 88

If –1 < w < 1, all of the following must also be greater than –1 and less than 1 EXCEPT for which choice?

A. w/2

B. w2

C. |w|

D. |w|0.5

E. 3w/2

ANSWER: E

Explanation:

The expression **3w/2** is the exception because multiplying a number by 3/2 can increase its distance from 0. Although w is restricted to values strictly between −1 and 1, 3w/2 is not necessarily in that same interval. For example, w = 0.8 satisfies −1 < w < 1. Substituting this value gives 3(0.8)/2 = 1.2, which is greater than 1. Similarly, choosing a value such as w = −0.8 produces −1.2, which is less than −1. Therefore, this expression can fall outside the required bounds even when w itself meets the stated condition.

This follows directly from using a valid counterexample: a statement that an expression “must” remain between −1 and 1 is disproved as soon as one permitted value of w yields a result outside that interval. This type of reasoning—interpreting inequalities, substituting permissible values, and checking the resulting expression—is central to PSAT math problem solving. See the College Board PSAT/NMSQT Math overview and Khan Academy’s inequalities resources.

QUESTION NO: 89

A roast was cooked at 325° F in the oven for 4 hours. The internal temperature rose from 32° F to 145°

F. What was the average rise in temperature per hour?

A. 20.2° F/hr

B. 28.25° F/hr

C. 32.03° F/hr

D. 37° F/hr

E. 37.29° F/hr

F. What was the average rise in temperature per hour?

ANSWER: B

Explanation:

The correct answer is **28.25° F/hr**. Average rise in temperature per hour is an average rate of change: subtract the starting internal temperature from the ending internal temperature, then divide that temperature increase by the elapsed cooking time. The roast’s internal temperature increased by 113 degrees, because 145 − 32 = 113. It cooked for 4 hours, so the average hourly increase was 113 ÷ 4 = 28.25. Therefore, its internal temperature rose by an average of 28.25 degrees Fahrenheit per hour.

The oven setting of 325 degrees Fahrenheit provides context but is not used in the calculation. The question asks for the change in the roast's *internal* temperature over time, not the difference between the oven temperature and the roast temperature. This is the same rate reasoning used in PSAT math questions: identify the total change in the quantity being measured and divide by the relevant time interval. For additional review of rates and unit rates, see the Khan Academy unit-rates review and the College Board PSAT math overview.

QUESTION NO: 90

Adapted from Ice-Caves of France and Switzerland by George Forrest Browne (1865)

This account states that the cave is in the county of Thorn, among the lowest spurs of the Carpathians. The entrance, which faces the north, and is exposed to the cold winds from the snowy part of the Carpathian range, is eighteen fathoms high and nine broad; and the cave spreads out laterally, and descends to a point fifty fathoms below the entrance, where it is twenty-six fathoms in breadth, and of irregular height. Beyond this no one had at that time penetrated, on account of the unsafe footing, although many distant echoes were returned by the farther recesses of the cave; indeed, to get even so far as this, much step-cutting was necessary.

When the external frost of winter comes on, the account proceeds, the effect in the cave is the same as if fires had been lighted there: the ice melts, and swarms of flies and bats and hares take refuge in the interior from the severity of the winter. As soon as spring arrives, the warmth of winter disappears from the interior, water exudes from the roof and is converted into ice, while the more abundant supplies which pour down on to the sandy floor are speedily frozen there. In the dog-days, the frost is so intense that a small icicle becomes in one day a huge mass of ice; but a cool day promptly brings a thaw, and the cave is looked upon as a barometer, not merely feeling, but also presaging, the changes of weather. The people of the neighborhood, when employed in field-work, arrange their labour so that the mid-day meal may be taken near the cave, when they either ice the water they have brought with them, or drink the melted ice, which they consider very good for the stomach. It had been calculated that six hundred weekly carts would not be sufficient to keep the cavern free from ice. The ground above the cave is peculiarly rich in grass. In explanation of these phenomena, Bell threw out the following suggestions, which need no comment. The earth being of itself cold and damp, the external heat of the atmosphere, by partially penetrating into the ground, drives in this native cold to the inner parts of the earth, and makes the cold there more dense. On the other hand, when the external air is cold, it draws forth towards the surface the heat there may be in the inner part of the earth, and thus makes caverns warm. In support and illustration of this view, he states that in the hotter parts of Hungary, when the people wish to cool their wine, they dig a hole two feet deep, and place in it the flagon of wine, and, after filling up the hole again, light a blazing fire upon the surface, which cools the wine as if the flagon had been laid in ice. He also suggests that possibly the cold winds from the Carpathians bring with them imperceptible particles of snow, which reach the water of the cave, and convert it into ice. Further, the rocks of the Carpathians abound in salts, nitre, alum, etc., which may, perhaps, mingle with such snowy particles, and produce the ordinary effect of the snow and salt in the artificial production of ice.

The second paragraph establishes all of the following EXCEPT _____.

A. icicles grow rapidly in high summer

B. animals shelter in the cave in winter

C. the area above the cave is verdant

D. the cave is warm when it is cold outside and vice versa

E. cutting steps into the cave was necessary

ANSWER: E

Explanation:

“cutting steps into the cave was necessary

” is the correct answer because this detail appears exclusively in the first paragraph, which describes the cave's location, dimensions, unsafe footing, and the difficulty of reaching its interior. The narrator says that “much step-cutting was necessary” to get as far as explorers had reached, establishing an access condition rather than one of the cave's unusual seasonal properties. The second paragraph begins a separate discussion of the cave's behavior in winter, spring, and summer. Its focus is on the reversal between outdoor and cave temperatures, the freezing and thawing of water, the rapid growth of ice in hot weather, animal refuge during winter, local use of the ice, vegetation above the cave, and proposed explanations for these phenomena. Because the question asks for the statement not established by that second paragraph,

the detail concerning step-cutting must be selected. This is a textual-evidence question: the relevant task is to distinguish information introduced in the descriptive opening paragraph from facts stated in the later explanatory paragraph. The passage is adapted from George Forrest Browne's nineteenth-century work, available through Internet Archive; background on primary-source reading and evidence-based interpretation is also available from the Library of Congress.

QUESTION NO: 91

The area of square ABCD is 50% greater than the perimeter of the equilateral triangle EFG. If the area of square ABCD is equal to 45, then what is the area of EFG?

A. 50√3

B. 30

C. 25

D. 50

E. 25√3

ANSWER: E

Explanation:

The correct answer is **25√3**. "50% greater than" means the square's area is 150% of the triangle's perimeter. Thus, if the square's area is 45, the triangle's perimeter is 45 ÷ 1.5 = 30. Because EFG is equilateral, its three sides are equal, so each side has length 30 ÷ 3 = 10.

An equilateral triangle with side length *s* has area *(√3/4)s²*. This formula follows by drawing an altitude, which divides the triangle into two congruent 30-60-90 triangles. Substituting 10 for the side length gives area = (√3/4)(10²) = (√3/4)(100) = 25√3. Therefore, the area of EFG is 25√3 square units. This uses the standard equilateral-triangle area relationship and the fact that all side lengths of an equilateral triangle are congruent. For a review of triangle-area formulas, see Khan Academy's equilateral triangle area guide and the College Board SAT Suite resources.

QUESTION NO: 92

Simplify the expression. (2x2 – 3x)(2y + a)

A. –6x3 + 2ay

B. None of the other answers

C. −2axy

D. 2x2y – 2ax2 – 3xy – 3ax

E. 4x2y + 2ax2 − 6xy − 3ax

ANSWER: E

Explanation:

The correct simplified expression is **4x2y + 2ax2 − 6xy − 3ax**. Apply the distributive property by multiplying each term in the first binomial, *2x2 − 3x*, by each term in the second binomial, *2y + a*. First, multiplying 2x2 by 2y gives 4x2y. Multiplying 2x2 by a gives 2ax2. Next, multiply −3x by 2y to get −6xy, and multiply −3x by a to get −3ax. Combining these four products produces 4x2y + 2ax2 − 6xy − 3ax.

No further simplification is possible because the resulting terms do not have identical variable parts and exponents. For example, 4x2y and −6xy differ in their powers of x, while 2ax2 and −3ax also differ in the power of x. This is a direct application of polynomial multiplication and the distributive property. Review the underlying multiplication rule at Khan Academy and polynomial operations guidance at OpenStax Elementary Algebra.

QUESTION NO: 93

Grace has 16 jellybeans in her pocket. She has 8 red ones, 4 green ones, and 4 blue ones. What is the minimum number of jellybeans she must take out of her pocket to ensure that she has one of each color?

A. 4

B. 8

C. 12

D. 13

E. 16

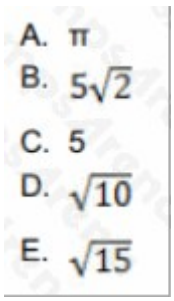
ANSWER: D

Explanation:

13 is correct because the question asks for a number that guarantees, rather than merely makes it possible, that Grace has drawn every color. To find a guarantee, consider the largest number of jellybeans she could draw while still missing one color. The most unfavorable case is drawing every red jellybean and every jellybean of one of the colors represented by four beans. That could total 8 red jellybeans plus 4 green jellybeans, or 8 red plus 4 blue, for 12 jellybeans without having all three colors. Therefore, after 12 draws, it is still possible that one color has not been drawn. The next draw, the thirteenth, must be from the remaining color, so Grace is then certain to have at least one red, one green, and one blue jellybean. This is a guarantee-style counting problem: assess the worst possible draw sequence and add one draw beyond it. For related counting and probability principles, see Khan Academy's probability library and OpenStax on sample spaces and probability.

QUESTION NO: 94

If one of the short sides of a 45-45-90 triangle equals 5, how long is the hypotenuse?



A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

F. 5√2

ANSWER: F

Explanation:

The correct hypotenuse length is **5√2**. In a 45-45-90 triangle, the two shorter sides, called legs, have equal lengths. When each leg has length 5, the Pythagorean theorem gives a hypotenuse whose square is $5^2 + 5^2$, or 25 + 25 = 50. Taking the

positive square root, because a side length cannot be negative, gives √50. This simplifies because 50 = 25 × 2, so √50 = √25 × √2 = 5√2. Equivalently, every 45-45-90 triangle follows the special right-triangle ratio 1 : 1 : √2: multiplying the leg length 5 by √2 immediately gives the hypotenuse, 5√2. Recognizing this ratio is useful on the PSAT because it provides a fast, exact result without needing to use a decimal approximation. For a review of the Pythagorean theorem and right-triangle relationships, see Khan Academy and the College Board PSAT math overview.

QUESTION NO: 95

If 45 is 120% of a number, what is 80% of the same number?

A. 30

B. 32

C. 36

D. 38

E. 41

ANSWER: A

Explanation:

30 is correct because the statement can be represented as 45 = 120% of an unknown number. Converting 120% to a decimal gives 1.2, so if the unknown number is represented by *n*, the equation is 45 = 1.2*n*. Dividing 45 by 1.2 gives 37.5, which is the original number. The question then asks for 80% of that same value. Converting 80% to 0.8 and multiplying gives 0.8 × 37.5 = 30. Equivalently, the requested amount is two-thirds of 45, because 80% is two-thirds of 120%; two-thirds of 45 is 30. This approach follows the standard percentage relationship: a percentage of a quantity is found by converting the percent to a decimal and multiplying by the whole quantity. For further practice with percentage calculations and proportional reasoning, see Khan Academy's percentage review and the College Board's SAT math reference information.

QUESTION NO: 96

"The Cell Cycle" by Joseph Ritchie (2014)

The process by which cells divide and multiply is known as the cell cycle. This cycle consists of two main phases: interphase and mitosis. Each phase consists of a series of clearly defined and observable steps. At the conclusion of the cycle, each parent cell produces two genetically identical daughter cells that may also replicate by proceeding through the cell cycle.

Roughly ninety percent of the cell cycle is spent in interphase. Interphase is comprised of three main steps: the first gap phase, the synthesis phase (also called "S phase"), and the second gap phase. The initial gap phase is a period of cellular preparation in which the cell increases in size and readies itself for DNA synthesis. In the synthesis phase, or S phase, DNA replication occurs, so that when the cell divides, each daughter cell will have the DNA necessary to function properly. In the second gap phase, the cell grows in size and prepares for cellular division in the mitotic phase. At the end of each gap phase, the cell has to pass a regulatory checkpoint to ensure that nothing is going wrong. If anything has gone wrong, the checkpoints stop the cell from proceeding through the cell cycle any further.

The next part of the cell cycle is mitosis. Mitosis is a form of cell division and is broken down into five distinct phases. During prophase, the genetic material contained in the cell's chromatin condenses into distinct chromosomes. Prometaphase is marked by the breakdown of the cell's nuclear envelope and the formation of centrosomes at the poles of the cell. During metaphase, the cell's chromosomes are moved to the center of the cell. A checkpoint ensures that the chromosomes are properly aligned on the center and halts the cell cycle if any errors have occurred. In anaphase, chromosomes break apart at their center, or centromere, and sister chromatids move to opposite ends of the cell. Lastly, telophase and cytokinesis occur as nuclear membranes form to physically divide the cell into two new daughter cells. Chromosomes also unwind into loose chromatin during this part of mitosis. Cytokinesis is defined as the division of the each cell's cytoplasm and organelles. At the conclusion of the cell cycle, two genetically identical daughter cells have formed.

The cell cycle operates by a series of checkpoints and external cues. This system of checks enables the cell to enter a state of dormancy known as the gap zero phase when conditions or other factors inhibit the cell cycle. Conversely, unregulated and uncontrolled cellular division can occur under certain circumstances. A cell in a state of uncontrolled division is known to

be cancerous. Lastly, cells have the ability to mediate their own death by way of apoptosis if certain genetic or physical abnormalities exist. The cell cycle is a complex process that enables cells to replicate and proliferate under a stringent set of checks and balances that produce healthy and viable daughter cells that are each able to perform the process in the future.

About how much time does a cell spend undergoing mitosis in the cell cycle?

A. Ten percent

B. Twenty-five percent

C. Fifteen percent

D. Fifty percent

ANSWER: A

Explanation:

Ten percent is correct because the passage states that interphase accounts for roughly ninety percent of the complete cell cycle. It also establishes that the cycle has two main phases: interphase and mitosis. Therefore, the remaining approximate share of the cycle is spent in mitosis: 100 percent minus 90 percent, or about 10 percent. The word “about” is important because the passage gives a rounded proportion rather than a precise measurement; the intended response is consequently an estimate, not an exact experimentally fixed duration.

This relationship is consistent with standard cell-biology descriptions. Interphase includes the first gap period, DNA-replication period, and second gap period, during which a cell grows, carries out normal functions, duplicates its genetic material, and prepares to divide. Mitosis and the associated physical separation of the cell are comparatively brief stages in the overall cycle. OpenStax notes that cells generally spend most of their time in interphase and that mitosis occupies a much shorter portion of the cycle: OpenStax Biology 2e: The Cell Cycle. A complementary overview from the National Human Genome Research Institute also describes cell-cycle progression through growth, DNA duplication, and division: NHGRI: Cell Cycle.

QUESTION NO: 97

What is the mathematical average of the number of weeks in a year, seasons in a year, and the number of days in January?

A. 36

B. 33

C. 32

D. 31

E. 29

ANSWER: E

Explanation:

The correct answer is **29**. This problem asks for the arithmetic mean of three standard calendar quantities: 52 weeks in a year, 4 seasons in a year, and 31 days in January. First, add those values: 52 + 4 + 31 = 87. Because there are three quantities being averaged, divide the total by 3: 87 ÷ 3 = 29. Therefore, the mathematical average is 29.

The calculation uses the conventional calendar count of 52 weeks in a year. Although a calendar year contains 365 days, which is 52 weeks plus 1 day, “the number of weeks in a year” in an elementary average problem is customarily treated as 52. January has 31 days in the Gregorian calendar, and a year is commonly divided into four seasons. These standard values make the result an exact whole number. Calendar month lengths are listed by timeanddate.com, and the National Institute of Standards and Technology provides background on time and calendar concepts at NIST.

QUESTION NO: 98

Adapted from The Gettysburg Address by Abraham Lincoln (1863)

Four score and seven years ago our fathers brought forth, upon this continent, a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

But, in a larger sense, we cannot dedicate, we cannot consecrate, we cannot hallow, this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract. The world will little note, nor long remember what we say here, but it can never forget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us – that from these honored dead we take increased devotion to that cause for which they here gave the last full measure of devotion – that we here highly resolve that these dead shall not have died in vain, that this nation, under God, shall have a new birth of freedom, and that government of the people, by the people, for the people, shall not perish from the earth.

The word “proposition” most nearly means _____.

A. notion

B. fallacy

C. estimation

D. challenge

E. legend

ANSWER: A

Explanation:

“Notion” is correct because, in this sentence, “proposition” means a principle, belief, or asserted idea. Lincoln says that the United States was “dedicated to the proposition that all men are created equal.” He is identifying the founding ideal to which the nation was committed: the belief that human beings possess equal status and rights. In formal logic and ordinary usage, a proposition is a statement that expresses an idea or claim that may be affirmed, discussed, or defended. The surrounding wording makes that meaning especially clear. “Conceived in liberty” and “dedicated to” describe a nation established around a core political principle rather than around a prediction, story, or practical task. The address later calls on the audience to renew devotion to the cause for which soldiers died, reinforcing that equality is the central ideal under discussion. Therefore, “notion” most closely captures the intended meaning of “proposition” in this historical and rhetorical context. The text of Lincoln’s address is available through the Library of Congress, and Merriam-Webster defines proposition as an idea, statement, or assertion.

QUESTION NO: 99

Also the Emperor became more and more excited with curiosity, and with great suspense one awaited the hour, when according to mask-law, each masked guest must make himself known. This moment came, but although all other unmasked; the secret knight still refused to allow his features to be seen, till at last the Queen driven by curiosity, and vexed at the obstinate refusal; commanded him to open his Vizier. He opened it, and none of the high ladies and knights knew him. But from the crowded spectators, two officials advanced, who recognized the black dancer, and horror and terror spread in the saloon, as they said who the supposed knight was. It was the executioner of Bergen. But glowing with rage, the King commanded to seize the criminal and lead him to death, who had ventured to dance, with the queen; so disgraced the Empress, and insulted the crown. The culpable threw himself at the Emperor, and said:

“Indeed I have heavily sinned against all noble guests assembled here, but most heavily against you my sovereign and my queen. The Queen is insulted by my haughtiness equal to treason, but no punishment even blood, will not be able to wash out the disgrace, which you have suffered by me. Therefore oh King! allow me to propose a remedy, to efface the shame, and to render it as if not done. Draw your sword and knight me, then I will throw down my gauntlet, to everyone who dares to speak disrespectfully of my king.” In context, the word “culpable” end of 1st paragraph is best represented by

A. faker.

B. imposter.

C. scoundrel.

D. offender.

E. criminal.

ANSWER: E

Explanation:

The best representation of “culpable” is “criminal.” Culpable means deserving blame or responsible for a wrongdoing. In this passage, the king orders that the man be seized and calls him “the criminal,” immediately before referring to him as “the culpable.” This direct contextual connection establishes that the two terms describe the same person in the same role: someone considered guilty of an offense. The speaker reinforces this meaning by admitting, “I have heavily sinned” and characterizing his conduct as haughtiness “equal to treason.” Thus, “culpable” does not merely suggest that he is disliked or socially inappropriate; it identifies him as a person held guilty and blameworthy for an alleged violation against the monarch and court. Modern dictionary definitions likewise define culpable as deserving condemnation or blame, especially for wrongdoing. See the Merriam-Webster definition of culpable and the Cambridge Dictionary definition of culpable. The nearby use of “criminal” supplies the strongest context clue and makes “criminal” the closest available answer.

QUESTION NO: 100

Adapted from “Feathers of Sea Birds and Wild Fowl for Bedding” from The Utility of Birds by Edward Forbush (ed. 1922)

In the colder countries of the world, the feathers and down of waterfowl have been in great demand for centuries as filling for beds and pillows. Such feathers are perfect non-conductors of heat, and beds, pillows, or coverlets filled with them represent the acme of comfort and durability. The early settlers of New England saved for such purposes the feathers and down from the thousands of wild-fowl which they killed, but as the population increased in numbers, the quantity thus furnished was insufficient, and the people sought a larger supply in the vast colonies of ducks and geese along the Labrador coast.

The manner in which the feathers and down were obtained, unlike the method practiced in Iceland, did not tend to conserve and protect the source of supply. In Iceland, the people have continued to receive for many years a considerable income by collecting eider down, but there they do not “kill the goose that lays the golden eggs.” Ducks line their nests with down plucked from their own breasts and that of the eider is particularly valuable for bedding. In Iceland, these birds are so carefully protected that they have become as tame and unsuspicious as domestic fowls In North America. Where they are constantly hunted they often conceal their nests in the midst of weeds or bushes, but in Iceland, they make their nests and deposit their eggs in holes dug for them in the sod. A supply of the ducks is maintained so that the people derive from them an annual income.

In North America, quite a different policy was pursued. The demand for feathers became so great in the New England colonies about the middle of the eighteenth century that vessels were fitted out there for the coast of Labrador for the express purpose of securing the feathers and down of wild fowl. Eider down having become valuable and these ducks being in the habit of congregating by thousands on barren islands of the Labrador coast, the birds became the victims of the ships’ crews. As the ducks molt all their primary feathers at once in July or August and are then quite incapable of flight and the young birds are unable to fly until well grown, the hunters were able to surround the helpless birds, drive them together, and kill them with clubs. Otis says that millions of wildfowl were thus destroyed and that in a few years their haunts were so broken up by this wholesale slaughter and their numbers were so diminished that feather voyages became unprofitable and were given up.

This practice, followed by the almost continual egging, clubbing, shooting, etc. by Labrador fishermen, may have been a chief factor in the extinction of the Labrador duck, that species of supposed restricted breeding range. No doubt had the eider duck been restricted in its breeding range to the islands of Labrador, it also would have been exterminated long ago.

Which of the following most likely happened after the Labrador feather voyages were no longer organized?

A. The price of eider down in North America plummeted.

B. Eider down began to be used for other purposes in North America.

C. A population of the Labrador duck was reestablished.

D. North Americans imported eider down from Iceland.

E. The quality of bedding in North America became preferable to that found in Iceland.

ANSWER: D

Explanation:

North Americans imported eider down from Iceland. The passage establishes a continuing North American demand for waterfowl feathers and down as bedding fill, then explains that local supplies no longer met that demand. Labrador voyages were organized specifically to obtain a larger supply of valuable eider down. Those voyages ended not because the material lost usefulness, but because intensive killing severely reduced the birds and made the expeditions unprofitable. At the same time, the passage identifies Iceland as a place where eider ducks were carefully protected and a stable supply of down was maintained, providing people with annual income. Thus, once the Labrador source had been depleted, obtaining eider down from Iceland is the most reasonable outcome: it connects an ongoing demand in North America with the passage's described sustainable source elsewhere. The inference is also consistent with the text's contrast between destructive harvesting in Labrador and managed collection in Iceland. The historical source appears in Edward Howe Forbush's The Utility of Birds, and the broader description of eiderdown as nest down collected without harming the birds is consistent with the Encyclopaedia Britannica entry on eiders.

QUESTION NO: 101

Let x and y be integers, such that x3 – y3 = 56. If x – y = 2 and 3xy = 24, then what is x2 + y2?

A. Cannot be determined

B. 12

C. –20

D. 20

E. 42

ANSWER: D

Explanation:

The correct answer is **20**. Apply the difference-of-cubes identity: $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$. Since $x^3 - y^3 = 56$ and $x - y = 2$, substitution gives $2(x^2 + xy + y^2) = 56$. Dividing by 2 shows that $x^2 + xy + y^2 = 28$. The additional condition $3xy = 24$ gives $xy = 8$. Replacing xy with 8 in the earlier expression produces $x^2 + 8 + y^2 = 28$, so subtracting 8 yields $x^2 + y^2 = 20$. This method is especially efficient because it uses the given cube relationship directly and avoids needing to solve separately for the individual integer values of x and y. The difference-of-cubes factorization used here is a standard algebraic identity; see OpenStax Elementary Algebra: Factor Special Products. For additional practice with polynomial factoring identities, consult Khan Academy's difference-of-cubes lesson.

QUESTION NO: 102

A right triangle has a total perimeter of 12, and the length of its hypotenuse is 5. What is the area of this triangle?

A. 12

B. 6

C. 15

D. 10

E. 3

ANSWER: B

Explanation:

6 is correct. Let the two legs of the right triangle be *a* and *b*. Since the perimeter is 12 and the hypotenuse is 5, the legs must add to 7: $a + b = 12 - 5 = 7$. The Pythagorean theorem also applies to a right triangle, so $a^2 + b^2 = 5^2 = 25$. Squaring the sum equation gives $(a + b)^2 = 49$, or $a^2 + 2ab + b^2 = 49$. Substituting $a^2 + b^2 = 25$ yields $25 + 2ab = 49$, so $ab = 12$. A triangle's area is one-half times its base times its perpendicular height. In a right triangle, the two legs are perpendicular, so they can serve as the base and height. Therefore, the area is $\frac{1}{2}ab = \frac{1}{2}(12) = 6$ square units. Equivalently, the side lengths are 3, 4, and 5, a standard Pythagorean triple, and $\frac{1}{2} \times 3 \times 4 = 6$. For review, see Khan Academy's Pythagorean theorem review and Math Is Fun's right-triangle guide.

QUESTION NO: 103

A mattress store sells their stock for 15% off of retail. If someone pays cash, they take an additional 10% off of the discounted price. If a mattress's retail price is $750, what is the price after the store discount and the cash discount?

A. $550.75

B. $562.50

C. $573.75

D. $637.50

E. $675.00

ANSWER: C

Explanation:

$573.75 is correct because the two discounts are applied in sequence, with the cash discount calculated from the already discounted price rather than from the original retail price. First, a 15% store discount means the customer pays 85% of the $750 retail price: $750 × 0.85 = $637.50. Next, paying cash gives an additional 10% reduction from $637.50. Therefore, the customer pays 90% of that discounted amount: $637.50 × 0.90 = $573.75. Equivalently, the combined calculation is $750 × 0.85 × 0.90, which also equals $573.75. This reflects an important percent principle: successive percent changes use multiplication by the remaining decimal factors. The discounts should not simply be added together, because the second percentage is explicitly based on the discounted price. For related guidance on using percentages and multistep calculations in digital SAT math, see the College Board SAT Math overview and Khan Academy's percentage review.

QUESTION NO: 104

Freddie is building a square pen for his pig. He plans to buy × feet of fencing to build the pen. This will result in a pen with an area of p square feet. Unfortunately, he only has enough money to buy one third of the planned amount of fencing. Which expression represents the area of the pen he can build with this limited amount of fencing?

A. p/9

B. p/6

C. p/3

D. 3p

E. 9p

ANSWER: A

Explanation:

The correct expression is **p/9**. For a square, the total fencing length is its perimeter, which equals four times the side length. If the available fencing is reduced to one third of the original perimeter, then each side of the new square is also one third of its original length. Area depends on two dimensions: length multiplied by width. Therefore, when both side lengths are scaled

by one third, the area is scaled by one third times one third, or one ninth. Since the original pen's area is p square feet, the reduced pen's area is (1/9)p, which is p/9 square feet. This is an application of the area scale-factor rule: when corresponding lengths in similar figures are multiplied by a factor k, their areas are multiplied by k^2. Here, k is 1/3, so the area factor is $(1/3)^2 = 1/9$. This proportional-reasoning approach is a useful strategy for PSAT geometry questions involving resized squares and other similar figures. See the College Board's PSAT/NMSQT math overview and Khan Academy's scale-factor lesson.

QUESTION NO: 105

Dan drives 5 miles north and then 8 miles west to get to school. If he walks, he can take a direct path from his house to the school, cutting down the distance. How long is the path from Dan's house to his school?

A. 19 miles

B. 9.43 miles

C. 89 miles

D. 4.36 miles

E. 13 miles

ANSWER: B

Explanation:

The correct answer is **9.43 miles**. Traveling 5 miles north and then 8 miles west creates two perpendicular segments: one vertical and one horizontal. Together with the direct walking route, these segments form a right triangle. The direct route is the hypotenuse, which is the side opposite the right angle and represents the shortest straight-line distance between Dan's house and school.

Use the Pythagorean theorem: the square of the hypotenuse equals the sum of the squares of the two legs. Squaring the known distances gives 25 and 64. Their sum is 89, so the direct distance is the square root of 89. That value is approximately 9.433 miles, which rounds to 9.43 miles to the nearest hundredth. This application is appropriate because the directions north and west are perpendicular, forming a 90-degree angle. For a review of this theorem and its use with right triangles, see Khan Academy's Pythagorean theorem overview and OpenStax's explanation of the Pythagorean theorem.

QUESTION NO: 106

If two sides of a triangle have lengths 8 and 10, what could the length of the third side NOT be?

A. 5

B. 8

C. 19

D. 14

E. 10

ANSWER: C

Explanation:

The length **19** could not be the third side. For three positive lengths to form a nondegenerate triangle, they must satisfy the Triangle Inequality Theorem: the sum of the lengths of any two sides must be greater than the remaining side. Using the known sides, the third side must be less than 8 + 10, which is 18. Since 19 is greater than 18, the two sides of lengths 8 and 10 would be too short to meet and enclose a triangle when paired with a side of length 19. Equivalently, 8 + 10 must be greater than 19, but 18 is not greater than 19. Therefore, these three lengths cannot make a triangle. The full allowable range for the third-side length is greater than the difference of the known sides, 10 − 8 = 2, and less than their sum, 18.

Thus, any valid third-side length must satisfy 2 < length < 18. This application of the triangle inequality is a standard geometry principle; see Encyclopaedia Britannica's triangle inequality overview and Wolfram MathWorld's Triangle Inequality reference.

QUESTION NO: 107

Max starts at Point A and travels 6 miles north to Point B and then 4 miles east to Point

C. What is the shortest distance from Point A to Point C?

A. 4√2 miles

B. 5 miles

C. What is the shortest distance from Point A to Point C?
10 miles

D. 7 miles

E. 2√13 miles

ANSWER: E

Explanation:

The correct answer is **2√13 miles**. Traveling 6 miles north and then 4 miles east forms two perpendicular sides of a right triangle: the northward path is one leg with length 6, and the eastward path is the other leg with length 4. The shortest distance from Point A directly to Point C is the triangle's hypotenuse. Using the Pythagorean theorem, the square of that direct distance is $6^2 + 4^2 = 36 + 16 = 52$. Therefore, the distance is √52. Since 52 = 4 × 13, √52 can be simplified to √(4 × 13) = 2√13. Thus, Max's straight-line distance from the starting point to the ending point is 2√13 miles, approximately 7.2 miles. This application uses the standard relationship for right triangles, in which the hypotenuse squared equals the sum of the squares of the two legs. For a review of this theorem and its use in distance problems, see Khan Academy's Pythagorean theorem review and the Encyclopaedia Britannica overview of the Pythagorean theorem.

QUESTION NO: 108

Adapted from "Feathers of Sea Birds and Wild Fowl for Bedding" from The Utility of Birds by Edward Forbush (ed. 1922)

In the colder countries of the world, the feathers and down of waterfowl have been in great demand for centuries as filling for beds and pillows. Such feathers are perfect non-conductors of heat, and beds, pillows, or coverlets filled with them represent the acme of comfort and durability. The early settlers of New England saved for such purposes the feathers and down from the thousands of wild-fowl which they killed, but as the population increased in numbers, the quantity thus furnished was insufficient, and the people sought a larger supply in the vast colonies of ducks and geese along the Labrador coast.

The manner in which the feathers and down were obtained, unlike the method practiced in Iceland, did not tend to conserve and protect the source of supply. In Iceland, the people have continued to receive for many years a considerable income by collecting eider down, but there they do not "kill the goose that lays the golden eggs." Ducks line their nests with down plucked from their own breasts and that of the eider is particularly valuable for bedding. In Iceland, these birds are so carefully protected that they have become as tame and unsuspicious as domestic fowls In North America. Where they are constantly hunted they often conceal their nests in the midst of weeds or bushes, but in Iceland, they make their nests and deposit their eggs in holes dug for them in the sod. A supply of the ducks is maintained so that the people derive from them an annual income.

In North America, quite a different policy was pursued. The demand for feathers became so great in the New England colonies about the middle of the eighteenth century that vessels were fitted out there for the coast of Labrador for the express purpose of securing the feathers and down of wild fowl. Eider down having become valuable and these ducks being in the habit of congregating by thousands on barren islands of the Labrador coast, the birds became the victims of the ships' crews. As the ducks molt all their primary feathers at once in July or August and are then quite incapable of flight and the young birds are unable to fly until well grown, the hunters were able to surround the helpless birds, drive them together, and kill them with clubs. Otis says that millions of wildfowl were thus destroyed and that in a few years their haunts were so

broken up by this wholesale slaughter and their numbers were so diminished that feather voyages became unprofitable and were given up.

This practice, followed by the almost continual egging, clubbing, shooting, etc. by Labrador fishermen, may have been a chief factor in the extinction of the Labrador duck, that species of supposed restricted breeding range. No doubt had the eider duck been restricted in its breeding range to the islands of Labrador, it also would have been exterminated long ago.

Based on the author's tone, we can tell that he thinks that _____.

A. Icelandic eider ducks have become too tame

B. the use of eider down in bedding is a barbaric practice

C. the Labrador feather voyages shouldn't have given up so easily

D. the Icelandic way of collecting eider down is preferable to the practices employed in North America

E. the Labrador feather voyages should have killed the ducks for their meat, not for their feathers

ANSWER: D

Explanation:

The Icelandic way of collecting eider down is preferable to the practices employed in North America. The author explicitly contrasts the two approaches and uses strongly approving language for Iceland's system. He says that collection there "did not tend to conserve and protect the source of supply," then clarifies that the Icelandic people do not "kill the goose that lays the golden eggs." Their protection of nesting birds maintains a continuing population and permits an "annual income," presenting down collection as sustainable when it does not destroy the birds.

In describing the Labrador expeditions, however, the author's diction conveys condemnation and concern: the birds are "victims," rendered "helpless" while molting, and subjected to "wholesale slaughter." He connects that destructive practice to the loss of habitat, a steep population decline, and possibly the extinction of the Labrador duck. This sustained contrast establishes the author's clear preference for the protective, renewable Icelandic practice over North American exploitation. The conclusion follows from tone and from the passage's repeated emphasis on conservation rather than merely from a factual comparison. This use of textual evidence and authorial word choice aligns with the College Board's Reading and Writing emphasis on analyzing how an author's choices convey meaning; see College Board's Reading and Writing overview and the Digital SAT test specifications.

QUESTION NO: 109

If Lynn can type a page in p minutes, what piece of the page can she do in 5 minutes?

A. 5/p

B. p – 5

C. p + 5

D. p/5

E. 1 – p + 5

ANSWER: A

Explanation:

The correct expression is **5/p**. Typing one whole page in p minutes means Lynn's constant typing rate is 1/p page per minute. Rate is found by dividing the amount of work completed, one page, by the time required, p minutes. Over 5 minutes, the amount typed equals rate multiplied by time: (1/p) × 5 = 5/p page. Thus, 5/p represents the fraction of a complete page Lynn can type during that interval, assuming she types at a steady rate. This is a standard rate-and-work relationship: work equals rate times time. The expression is a fraction rather than a number of minutes because the question asks for a piece of the page. For example, if p were 10, Lynn would type 5/10, or one-half, of a page in 5 minutes. The same proportional

reasoning applies for any positive value of p. For additional guidance on using rates and proportions in SAT-style mathematics, see the College Board SAT Math overview and Khan Academy's rates and proportions resources.

QUESTION NO: 110

F. Scott Fitzgerald was a prominent American writer of the twentieth century. This passage comes from one of his short stories and tells the story of a young John Unger leaving home forboarding school. John T. Unger came from a family that had been well known in Hades a small town on the Mississippi River for several generations. John's father had held the amateur golf championship through many a heated contest; Mrs. Unger was known "from hot-box to hot-bed," as the local phrase went, for her political addresses; and young John T. Unger, who had just turned sixteen, had danced all the latest dances from New York before he put on long trousers. And now, for a certain time, he was to be away from home.

That respect for a New England education which is the bane of all provincial places, which drains them yearly of their most promising young men, had seized upon his parents.

Nothing would suit them but that he should go to St. Midas's School near Boston – Hades was too small to hold their darling and gifted son. Now in Hades – as you know if you ever have been there the names of the more fashionable preparatory schools and colleges mean very little. The inhabitants have been so long out of the world that, though they make a show of keeping up-todate in dress and manners and literature, they depend to a great extent on hearsay, and a function that in Hades would be considered elaborate would doubtless be hailed by a Chicago beefprincess as "perhaps a little tacky."

John T. Unger was on the eve of departure. Mrs. Unger, with maternal fatuity, packed his trunks full of linen suits and electric fans, and Mr. Unger presented his son with an asbestos pocket-book stuffed with money. "Remember, you are always welcome here," he said. "You can be sure, boy, that we'll keep the home fires burning." "I know," answered John huskily.

"Don't forget who you are and where you come from," continued his father proudly, "and you can do nothing to harm you. You are an Unger – from Hades."

So the old man and the young shook hands, and John walked away with tears streaming from his eyes. Ten minutes later he had passed outside the city limits and he stopped to glance back for the last time. Over the gates the old-fashioned Victorian motto seemed strangely attractive to him. His father had tried time and time again to have it changed to something with a little more push and verve about it, such as "Hades – Your Opportunity," or else a plain "Welcome" sign set over a hearty handshake pricked out in electric lights. The old motto was a little depressing, Mr. Unger had thought – but now.

So John took his look and then set his face resolutely toward his destination. And, as he turned away, the lights of Hades against the sky seemed full of a warm and passionate beauty. The tone of sentence "their darling and gifted son" can best be described as

A. compassionate.

B. sincere.

C. sardonic.

D. dismayed.

E. understated.

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ANSWER: C

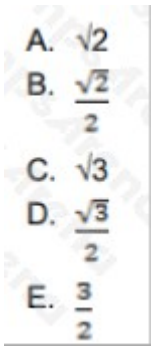
Explanation:

“sardonic.” is correct because the narration treats the parents’ grand view of their son with dry, cutting amusement. Calling him their “darling and gifted son” is deliberately inflated in context: the narrator has already portrayed the family and their town through exaggerated, comic details, including their secondhand ideas of fashionable education and their conspicuous preparations for his departure. The statement that Hades is “too small” for him echoes the parents’ self-important belief rather than neutrally confirming that he is exceptional. This gap between their pride and the narrator’s knowingly exaggerated presentation creates a sardonic tone—one marked by ironic mockery and sharp humor. The unusual names, the lavish but impractical possessions, and the town’s provincial aspirations reinforce the story’s satirical voice while preserving the characters’ emotional seriousness. The passage is from the opening of Fitzgerald’s “The Diamond as Big as the Ritz,” a story widely noted for its satirical treatment of wealth, status, and social pretension. The full text is available at Wikisource; contextual information about the story and its publication appears at Encyclopaedia Britannica.

QUESTION NO: 111

Regular hexagon ABCDEF has side length 1.

Give the length of diagonal AE.



A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

F. √3

ANSWER: F

Explanation:

The length of diagonal AE is √3. A regular hexagon can be divided by drawing segments from its center to all six vertices. Because each central angle is 60° and each radius of a regular hexagon equals its side length, the resulting regions are

equilateral triangles with side length 1. Vertices A and E are separated by one intervening vertex, so AE is the diagonal that spans two adjacent equilateral-triangle sectors. Equivalently, consider triangle AED: ED is a side of the hexagon and has length 1, while the geometry of the regular hexagon makes this a 30°–60°–90° triangle with AE opposite the 60° angle. In a 30°–60°–90° triangle, the long leg is √3 times the short leg. Therefore, AE = 1 × √3 = √3. This also agrees with the standard regular-hexagon diagonal relationship: a diagonal joining vertices with one vertex between them has length √3 times the side length. See Math Open Reference: Regular Hexagon and Cuemath: Regular Hexagon.

QUESTION NO: 112

If the perimeter of a square is equal to twice its area, what is the length of one of its sides?

A. 2

B. 4

C. 8

D. 3

ANSWER: A

Explanation:

For a square with side length *s*, its perimeter is $4s$ because it has four equal sides. Its area is s^2. The condition states that the perimeter equals twice the area, so the appropriate equation is $4s = 2s^2$. Because a square's side length must be positive, divide both sides by $2s$ to obtain $2 = s$. Therefore, the length of one side is **2** units. This result can be checked directly: a square with side length 2 has perimeter $4 \times 2 = 8$ units and area $2 \times 2 = 4$ square units. Twice the area is $2 \times 4 = 8$, which equals the perimeter, satisfying the stated relationship. The formulas used are the standard geometric definitions for a square: perimeter is four times the side length, and area is the side length multiplied by itself. See Khan Academy's area formulas for squares and Math Is Fun's square reference.

QUESTION NO: 113

If the average of the measures of two angles in a triangle is 75°, what is the measure of the third angle in this triangle?

A. 40°

B. 75°

C. 50°

D. 30°

E. 65°

ANSWER: D

Explanation:

The correct answer is **30°**. If two angle measures have an average of 75°, their combined measure is twice that average: 2 × 75° = 150°. The interior angles of every triangle total 180°, so the remaining, third angle must account for the difference between 180° and 150°. Thus, its measure is 180° − 150° = 30°. This reasoning does not require the two given angles to be equal; it uses only their average, which determines their total. The result is also a valid triangle angle measure because it is positive, and the three angles can sum to 180°. The triangle angle-sum theorem is a fundamental Euclidean-geometry relationship used throughout PSAT mathematics problems. For further review, see the Khan Academy explanation of the triangle angle-sum theorem and the OpenStax discussion of angle relationships.

QUESTION NO: 114

In compliance with the request of a friend of mine, who wrote me from the East, I called on good-natured, garrulous old Simon Wheeler, and inquired after my friend's friend, Leonidas W. Smiley, as requested to do, and I hereunto append the result. I have a lurking suspicion that Leonidas W. Smiley is a myth; that my friend never knew such a personage; and that he only conjectured that, if I asked old Wheeler about him, it would remind him of his infamous Jim Smiley, and he would go to work and bore me nearly to death with some infernal reminiscence of him as long and tedious as it should be useless to me. If that was the design, it certainly succeeded.

I found Simon Wheeler dozing comfortably by the barroom stove of the old, dilapidated tavern in the ancient mining camp of Angel's, and I noticed that he was fat and bald-headed, and had an expression of winning gentleness and simplicity upon his tranquil countenance. He roused up and gave me good-day. I told him a friend of mine had commissioned me to make some inquiries about a cherished companion of his boyhood named Leonidas W.

Smiley – Rev. Leonidas W. Smiley – a young minister of the Gospel, who he had heard was at one time a resident of Angel's Camp. I added that, if Mr. Wheeler could tell me anything about this Rev. Leonidas W. Smiley, I would feel under many obligations to him.

What information does the narrator relate prior to the retelling of the meeting of Simon Wheeler?

A. The story likely to be heard would feasibly be boring and long.

B. The information he might hear would be of no general interest to him.

C. Any story he might hear from Wheeler would likely be long.

D. His suspicion that Wheeler would bore him with a long, useless reminiscence proved true.

E. Somehow there might be a story about Jim Smiley to be perhaps told by Wheeler.

ANSWER: D

Explanation:

The correct answer is "His suspicion that Wheeler would bore him with a long, useless reminiscence proved true." Before the narrator begins recounting the encounter in the tavern, he gives readers a framing comment about his friend's probable purpose in sending him to Simon Wheeler. He suspects that the inquiry about Leonidas W. Smiley was designed to prompt Wheeler to tell an extended story about Jim Smiley. Crucially, the narrator closes that reflection with the statement, "If that was the design, it certainly succeeded." This direct assertion turns the narrator's earlier expectation into confirmed information: Wheeler did indeed lead him into the tedious, seemingly irrelevant reminiscence the narrator anticipated. The wording establishes the narrator's dry, ironic attitude and prepares the reader for the comic storytelling that follows. This passage is the opening frame of Mark Twain's "The Celebrated Jumping Frog of Calaveras County," a story that uses a skeptical narrator and an embedded tale for humor. The complete text is available through Project Gutenberg, and contextual publication information is available from the Mark Twain Project.

QUESTION NO: 115

Kathy and Jill are traveling from their home to the same destination. Kathy travels due east and then after traveling 6 miles turns and travels 8 miles due north. Jill travels directly from her home to the destination. How miles does Jill travel?

A. 14 miles

B. 12 miles

C. 16 miles

D. 10 miles

E. 8 miles

ANSWER: D

Explanation:

Jill travels **10 miles**. Kathy's 6-mile trip due east and subsequent 8-mile trip due north are perpendicular movements, so they form the two legs of a right triangle. Because Jill travels directly from the starting point to the same destination, her route is the hypotenuse—the straight-line side opposite the right angle. Applying the Pythagorean theorem, the distance is $\sqrt{(6^2 + 8^2)} = \sqrt{(36 + 64)} = \sqrt{100} = 10$. Therefore, the direct distance between home and the destination is 10 miles. This is also a common 6–8–10 Pythagorean triple, which is a scaled version of the 3–4–5 right triangle. The Pythagorean theorem states that, for a right triangle with leg lengths a and b and hypotenuse c, $a^2 + b^2 = c^2$. See Khan Academy's Pythagorean theorem review and OpenStax's explanation of the Pythagorean theorem.

QUESTION NO: 116

The paparazzi received many sizeable offers for the pictures of Ferggie in the _____ act of topless bathing in Capri.

A. embarrassing

B. ignoble

C. hypocritical

D. degenerative

E. hedonistic

ANSWER: B

Explanation:

ignoble is the best fit because it describes conduct regarded as dishonorable, lacking in dignity, or beneath the standards expected of a person. The sentence frames the photographs as valuable specifically because they depict a public figure in behavior that could be treated as undignified or discreditable. That connotation is especially apt in the context of Fergie, the Duchess of York, whose public role and connection to the British royal family made perceived breaches of decorum highly newsworthy. Thus, "the ignoble act" communicates not merely that the event was awkward or notable, but that the narrator characterizes it as a lapse in dignity or honor. This use matches standard dictionary definitions of *ignoble* as "of low character, aims, or purposes" and "not noble," including the sense of being dishonorable. See the Merriam-Webster definition of ignoble and the Cambridge Dictionary entry for ignoble. The surrounding wording, particularly the emphasis on paparazzi offers and the public nature of the images, supports this evaluative sense of compromised dignity.

QUESTION NO: 117

"Interpreting the Copernican Revolution" by Matthew Minerd (2014)

The expressions of one discipline can often alter the way that other subjects understand themselves. Among such cases are numbered the investigations of Nicolaus Copernicus. Copernicus is best known for his views concerning heliocentrism, a view which eventually obliterated many aspects of the ancient/medieval worldview, at least from the standpoint of physical science. It had always been the natural view of mankind that the earth stood at the center of the universe, a fixed point in reference to the rest of the visible bodies. The sun, stars, and planets all rotated around the earth.

With time, this viewpoint became one of the major reference points for modern life. It provided a provocative image that was used – and often abused – by many people for various purposes. For those who wished to weaken the control of religion on mankind, it was said that the heliocentric outlook proved man's insignificance. In contrast with earlier geocentrism, heliocentrism was said to show that man is not the center of the universe. He is merely one small being in the midst of a large cosmos. However, others wished to use the "Copernican Revolution" in a very different manner. These thinkers wanted to show that there was another "recentering" that had to happen. Once upon a time, we talked about the world. Now, however, it was necessary to talk of man as the central reference point. Just as the solar system was "centered" on the sun, so too should the sciences be centered on the human person.

However, both of these approaches are fraught with problems. Those who wished to undermine the religious mindset rather misunderstood the former outlook on the solar system. The earlier geocentric mindset did not believe that the earth was the most important body in the heavens. Instead, many ancient and medieval thinkers believed that the highest "sphere" above the earth was the most important being in the physical universe. Likewise, the so-called "Copernican Revolution" in physics was different from the one applied to the human person. Copernicus' revolution showed that the human point of view was not the center, whereas the later forms of "Copernican revolution" wished to show just the opposite.

Of course, there are many complexities in the history of such important changes in scientific outlook. Nevertheless, it is fascinating to see the wide-reaching effects of such discoveries, even when they have numerous, ambiguous effects.

Which of the following would likely be most interesting to those who believe the underlined sentence?

A. None of the other answers

B. Human anatomy

C. Human culture

D. The chemical basis for human emotions

E. Evolution of primates into man

ANSWER: C

Explanation:

Human culture is the best answer because the passage describes thinkers who want the sciences to be "centered on the human person." Their concern is not merely with human beings as physical organisms, but with human persons as the primary point of reference for understanding reality. Culture directly concerns the distinctively human ways people create and share meaning: beliefs, values, customs, language, institutions, art, and social practices. Studying culture therefore addresses human life at the level of interpretation, purpose, and collective self-understanding, which fits a person-centered approach to knowledge.

This reading follows the passage's contrast between describing the external world and making the human person central to inquiry. A field focused on human culture asks how people organize life and make meaning in communities, making it especially relevant to thinkers who advocate this kind of "recentering." The American Anthropological Association describes anthropology as the study of humans, including the social and cultural dimensions of human life, and its materials explain culture as learned and shared patterns of thought and behavior. See the American Anthropological Association's overview of anthropology and the Encyclopaedia Britannica definition of culture.

QUESTION NO: 118

If the hypotenuse of a triangle is 5 meters, which of the following is the closest value to the area of the triangle?

A. 45

B. 5

C. 12

D. 26

E. 54

F. Cannot be determined from the information given.

ANSWER: F

Explanation:

Cannot be determined from the information given is correct because a hypotenuse length alone does not fix the area of a right triangle. If the legs are denoted by lengths whose squares sum to 25, the area is one-half of their product. Different pairs of leg lengths can satisfy that same hypotenuse condition while producing different areas. For example, legs of 3 meters and 4 meters give an area of 6 square meters, whereas other valid leg lengths give other areas. In fact, with a fixed hypotenuse of 5 meters, the greatest possible area is 6.25 square meters, attained when the two legs are equal; areas can also be made arbitrarily close to zero as one leg becomes very short. Therefore, no single numerical area, including 12, follows from the stated measurement. Area must be expressed in square meters, not meters. The relevant right-triangle relationship is the Pythagorean theorem, described by Khan Academy. The area formula for a triangle is summarized by Encyclopaedia Britannica.

QUESTION NO: 119

What is the fraction equivalent of the shaded region in the following circle?



A. 2/3

B. 3/8

C. 4/5

D. 3/4

E. 7/16

ANSWER: A

Explanation:

The shaded portion is represented by **2/3**. A fraction describing a shaded diagram is found by identifying the number of equal-sized parts in the whole figure and then counting how many of those equal parts are shaded. In this circle, the whole is divided into three equal regions, and two of those regions are shaded. Therefore, the shaded amount is 2 out of 3 equal parts, written as 2/3. The denominator, 3, names the total number of equal sections that make up the circle. The numerator, 2, names the shaded sections. Equal-sized parts are essential: fractions represent a portion of one whole only when the whole has been partitioned fairly into equal shares. This is also a useful way to check visual fraction problems: count all equal regions first, then count the selected or shaded regions, and write the result as shaded parts over total parts. For additional guidance on interpreting fractions as equal parts of a whole, see Khan Academy's introduction to fractions and the Math Is Fun fractions overview.

QUESTION NO: 120

A square garden has an area of 49 ft2. To the nearest foot, what is the diagonal distance across the garden?

A. 8

B. 7

C. 10

D. 9

E. 11

ANSWER: C

Explanation:

The correct answer is **10**. A square with area 49 square feet has side length equal to the square root of its area: √49 = 7 feet. The diagonal of a square forms the hypotenuse of a right triangle whose two legs are each 7 feet long. Applying the Pythagorean theorem gives a diagonal length of √(7² + 7²), or √98. This can also be written as 7√2. Since √2 is approximately 1.414, the diagonal is approximately 7 × 1.414 = 9.899 feet. Rounding 9.899 to the nearest whole foot gives 10 feet. The diagonal is therefore longer than one side because it crosses the square from one corner to the opposite corner. This use of the Pythagorean theorem is consistent with standard right-triangle geometry; see Khan Academy's Pythagorean theorem review and Math Is Fun's Pythagorean theorem guide.

QUESTION NO: 121

Had Einstein not been such a _____ mathematician, many of our engineering Accomplishments may have taken many years before even reaching the drawing board.

A. prodigious

B. superb

C. qualified

D. prophetic

E. prosaic

ANSWER: A

Explanation:

prodigious is correct because it describes someone or something extraordinary in amount, extent, or achievement. In this context, the sentence credits Einstein's exceptional mathematical ability with accelerating developments that later supported major engineering advances. The conditional construction—"Had Einstein not been such a _____ mathematician"—calls for a word that conveys unusually great talent, not merely baseline competence. "Prodigious" supplies that strong sense of remarkable intellectual capacity and accomplishment, making the causal relationship in the sentence persuasive: Einstein's mathematics was so exceptional that without it, important ideas might have taken much longer to become usable in engineering.

The word can describe an outstanding person directly, as in a prodigious scholar or a prodigious mathematician, and it also carries the implication of a level of ability well beyond the ordinary. That meaning matches Einstein's historical reputation as a theoretical physicist whose work depended on sophisticated mathematics and transformed scientific understanding. Merriam-Webster defines "prodigious" as extraordinary in bulk, quantity, or degree and also as exciting wonder or amazement; see Merriam-Webster's entry for "prodigious". For background on Einstein's scientific work and its significance, consult Encyclopaedia Britannica's biography of Albert Einstein.

QUESTION NO: 122

Twentieth-century Japan faced the question of how to ____ the best of modern civilization without losing the benefits of Japan's ____ way of life.

A. reject . . ancient

B. adopt . . outmoded

C. assimilate . . traditional

D. incorporate . . contemporary

E. reshape . . historic

ANSWER: C

Explanation:

“assimilate . . traditional” correctly completes the sentence because it expresses the balance the passage describes: Japan sought to absorb valuable features of modern civilization while preserving the advantages of its established cultural practices. To *assimilate* is to take in, absorb, or incorporate something into an existing whole. In this context, the word suggests that modern developments could become part of Japanese society rather than simply replace what already existed. Merriam-Webster defines *assimilate* as bringing something into conformity with or incorporating it into a larger whole: Merriam-Webster: assimilate.

The phrase “traditional way of life” provides the needed contrast with “modern civilization.” It refers to long-established customs, values, and social practices that a society may wish to retain even as it modernizes. This produces a coherent relationship across the sentence: accepting useful aspects of modernization need not require abandoning inherited cultural benefits. The word *traditional* commonly describes something handed down through generations or following long-standing practices, as reflected in the Cambridge Dictionary definition of traditional. Together, the two words precisely convey selective modernization alongside cultural continuity.

QUESTION NO: 123

Adapted from Ice-Caves of France and Switzerland by George Forrest Browne (1865)

This account states that the cave is in the county of Thorn, among the lowest spurs of the Carpathians. The entrance, which faces the north, and is exposed to the cold winds from the snowy part of the Carpathian range, is eighteen fathoms high and nine broad; and the cave spreads out laterally, and descends to a point fifty fathoms below the entrance, where it is twenty-six fathoms in breadth, and of irregular height. Beyond this no one had at that time penetrated, on account of the unsafe footing, although many distant echoes were returned by the farther recesses of the cave; indeed, to get even so far as this, much step-cutting was necessary.

When the external frost of winter comes on, the account proceeds, the effect in the cave is the same as if fires had been lighted there: the ice melts, and swarms of flies and bats and hares take refuge in the interior from the severity of the winter. As soon as spring arrives, the warmth of winter disappears from the interior, water exudes from the roof and is converted into ice, while the more abundant supplies which pour down on to the sandy floor are speedily frozen there. In the dog-days, the frost is so intense that a small icicle becomes in one day a huge mass of ice; but a cool day promptly brings a thaw, and the cave is looked upon as a barometer, not merely feeling, but also presaging, the changes of weather. The people of the neighborhood, when employed in field-work, arrange their labour so that the mid-day meal may be taken near the cave, when they either ice the water they have brought with them, or drink the melted ice, which they consider very good for the stomach. It had been calculated that six hundred weekly carts would not be sufficient to keep the cavern free from ice. The ground above the cave is peculiarly rich in grass. In explanation of these phenomena, Bell threw out the following suggestions, which need no comment. The earth being of itself cold and damp, the external heat of the atmosphere, by partially penetrating into the ground, drives in this native cold to the inner parts of the earth, and makes the cold there more dense. On the other hand, when the external air is cold, it draws forth towards the surface the heat there may be in the inner part of the earth, and thus makes caverns warm. In support and illustration of this view, he states that in the hotter parts of Hungary, when the people wish to cool their wine, they dig a hole two feet deep, and place in it the flagon of wine, and, after filling up the hole again, light a blazing fire upon the surface, which cools the wine as if the flagon had been laid in ice. He also suggests that possibly the cold winds from the Carpathians bring with them imperceptible particles of snow, which reach the water of the cave, and convert it into ice. Further, the rocks of the Carpathians abound in salts, niter, alum, etc., which may, perhaps, mingle with such snowy particles, and produce the ordinary effect of the snow and salt in the artificial production of ice.

Which of the following sentences best describes the function of the first paragraph within the passage as a whole?

A. An argument about incorrect information which is being circulated about the cave, particularly about depth

B. A description of the woeful state of the cave at the time of the author's arrival there

C. A lengthy summation of all of the information available to the author on the cave

D. A manifesto of what the author hopes to achieve in his study of the cave and the details he was given about it

E. A brief introduction, explaining the location and the existing knowledge about the cave and its shape

ANSWER: E

Explanation:

“A brief introduction, explaining the location and the existing knowledge about the cave and its shape” accurately identifies the first paragraph’s role in the passage. Before the account turns to the cave’s remarkable seasonal changes and proposed explanations for them, the opening establishes essential background. It places the cave geographically in the county of Thorn near the Carpathians, notes that its entrance faces north toward cold winds, and supplies physical details about the entrance, depth, width, and irregular interior height. It also establishes the limit of contemporary exploration: people had not safely gone farther because of dangerous footing. These details orient the reader and define what was known about the cave’s physical form at the outset. That framing prepares the reader to understand the later description of unusual ice formation, thawing, and local observations as phenomena occurring in this particular cave environment. On passage-function questions, the relevant task is to determine how a paragraph contributes to the structure and development of the entire text, rather than merely identify an isolated detail. This paragraph functions as contextual setup and physical description. For guidance on analyzing how textual details support an overall account, see the Common Core Reading Literature standards and the digitized historical context for Ice-Caves of France and Switzerland.

QUESTION NO: 124

John is traveling to a meeting that is 28 miles away. He needs to be there in 30 minutes. How fast does he need to go to make it to the meeting on time?

A. 25mph

B. 37mph

C. 41mph

D. 49mph

E. 56mph

ANSWER: E

Explanation:

56mph is correct because speed is found by dividing distance by time. The distance is 28 miles, and the available travel time is 30 minutes. Since speed is expressed in miles per hour, the time must first be converted to hours: 30 minutes is 30/60 hour, or 0.5 hour. Applying the relationship *speed* = *distance* ÷ *time* gives 28 ÷ 0.5 = 56. Therefore, John must travel at an average speed of 56 miles per hour to cover 28 miles in one-half hour.

This calculation assumes that 30 minutes is the full amount of time available for the trip and that the stated speed is an average speed over the entire distance. A useful way to verify the result is to multiply 56 miles per hour by 0.5 hour: the hours cancel, leaving 28 miles, which matches the required distance exactly. This is the standard rate, time, and distance relationship used in PSAT math questions. The College Board’s digital SAT practice resources include algebra and problem-solving skills of this kind: SAT Practice Tests. For further instruction on unit rates and proportional reasoning, see Khan Academy’s ratios and rates resources.

QUESTION NO: 125

Adapted from The Effects of Cross & Self-Fertilisation in the Vegetable Kingdom by Charles Darwin (1876)

As it is impossible to exclude such minute pollen-carrying insects as Thrips, flowers which it was intended to fertilize with their own pollen may sometimes have been afterwards crossed with pollen brought by these insects from another flower on the same plant; but as we shall hereafter see, a cross of this kind does not produce any effect, or at most only a slight one. When two or more plants were placed near one another under the same net, as was often done, there is some real though not great danger of the flowers which were believed to be self-fertilized being afterwards crossed with pollen brought by Thrips from a distinct plant. I have said that the danger is not great because I have often found that plants which are self-sterile, unless aided by insects, remained sterile when several plants of the same species were placed under the same net. If, however, the flowers which had been presumably self-fertilized by me were in any case afterwards crossed by Thrips with pollen brought from a distinct plant, crossed seedlings would have been included amongst the self-fertilized; but it should be

especially observed that this occurrence would tend to diminish and not to increase any superiority in average height, fertility, etc., of the crossed over the self-fertilized plants.

As the flowers which were crossed were never castrated, it is probable or even almost certain that I sometimes failed to cross-fertilize them effectually, and that they were afterwards

spontaneously self-fertilized. This would have been most likely to occur with dichogamous species, for without much care it is not easy to perceive whether their stigmas are ready to be fertilized when the anthers open. But in all cases, as the flowers were protected from wind, rain, and the access of insects, any pollen placed by me on the stigmatic surface whilst it was immature, would generally have remained there until the stigma was mature; and the flowers would then have been crossed as was intended. Nevertheless, it is highly probable that self-fertilized seedlings have sometimes by this means got included amongst the crossed seedlings. The effect would be, as in the former case, not to exaggerate but to diminish any average superiority of the crossed over the self-fertilized plants. Errors arising from the two causes just named, and from others, – such as some of the seeds not having been thoroughly ripened, though care was taken to avoid this error – the sickness or unperceived injury of any of the plants, – will have been to a large extent eliminated, in those cases in which many crossed and self-fertilized plants were measured and an average struck. Some of these causes of error will also have been eliminated by the seeds having been allowed to germinate on bare damp sand, and being planted in pairs; for it is not likely that ill-matured and well-matured, or diseased and healthy seeds, would germinate at exactly the same time. The same result will have been gained in the several cases in which only a few of the tallest, finest, and healthiest plants on each side of the pots were measured.

Kolreuter and Gartner have proved that with some plants several, even as many as from fifty to sixty, pollen-grains are necessary for the fertilization of all the ovules in the ovarium. Naudin also found in the case of Mirabilis that if only one or two of its very large pollen-grains were placed on the stigma, the plants raised from such seeds were dwarfed. I was therefore careful to give an amply sufficient supply of pollen, and generally covered the stigma with it; but I did not take any special pains to place exactly the same amount on the stigmas of the self-fertilized and crossed flowers. After having acted in this manner during two seasons, I remembered that Gartner thought, though without any direct evidence, that an excess of pollen was perhaps injurious. It was therefore necessary to ascertain whether the fertility of the flowers was affected by applying a rather small and an extremely large quantity of pollen to the stigma. Accordingly a very small mass of pollen-grains was placed on one side of the large stigma in sixty-four flowers of Ipomoea purpurea, and a great mass of pollen over the whole surface of the stigma in sixty-four other flowers. In order to vary the experiment, half the flowers of both lots were on plants produced from self-fertilised seeds, and the other half on plants from crossed seeds. The sixty-four flowers with an excess of pollen yielded sixty-one capsules; and excluding four capsules, each of which contained only a single poor seed, the remainder contained on an average 5.07 seeds per capsule. The sixty-four flowers with only a little pollen placed on one side of the stigma yielded sixty-three capsules, and excluding one from the same cause as before, the remainder contained on an average 5.129 seeds. So that the flowers fertilized with little pollen yielded rather more capsules and seeds than did those fertilized with an excess; but the difference is too slight to be of any significance. On the other hand, the seeds produced by the flowers with an excess of pollen were a little heavier of the two; for 170 of them weighed 79.67 grains, whilst 170 seeds from the flowers with very little pollen weighed 79.20 grains. Both lots of seeds having been placed on damp sand presented no difference in their rate of germination. We may therefore conclude that my experiments were not affected by any slight difference in the amount of pollen used; a sufficiency having been employed in all cases.

One of the main points made in the last paragraph is _____.

A. For heavier seeds, less pollen is required.

B. The experiment concerning the amount of pollen used to fertilize a flower proved that little or no error had initially been made in the main experiment.

C. Mirabilis has a high rate of germination.

D. The results of the experiment proved that the amount of pollen used causes significant variation in the number of seeds produced.

E. Ipomoea purpurea produce smaller plants when under-pollinated.

ANSWER: B

Explanation:

The experiment concerning the amount of pollen used to fertilize a flower proved that little or no error had initially been made in the main experiment. In the final paragraph, Darwin examines a possible source of experimental error: although he had supplied ample pollen in earlier work, he had not ensured that every stigma received precisely the same quantity. He therefore directly compares flowers receiving a very small amount of pollen with flowers receiving an extremely large amount. The outcomes are closely similar: the small numerical differences in capsules and seeds are explicitly described as

too slight to be meaningful, seed weights differ only a little, and the two groups germinate at the same rate. These results support his concluding claim that slight differences in pollen quantity did not affect his broader experiments because a sufficient amount had been used throughout. Thus, the paragraph's central purpose is methodological validation: it tests whether variation in the pollen application procedure could have distorted the main findings and finds that it did not. The passage is adapted from Darwin's published discussion of controls and possible errors in plant-fertilization experiments; see the full text at Project Gutenberg and the bibliographic record at The Complete Work of Charles Darwin Online.

QUESTION NO: 126

The electric company charges 3 cents per kilowatt-hour. George used 2800 kilowatt-hours in April, 3200 kilowatt-hours in May, and 3600 kilowatt-hours in June. What was his average cost of electricity for the 3 months?

A. $72

B. $88

C. $96

D. $102

E. $113

ANSWER: C

Explanation:

The correct answer is **$96**. First find George's total electricity use over the three months: 2,800 + 3,200 + 3,600 = 9,600 kilowatt-hours. Because the question asks for the average cost for three months, divide the total usage by 3: 9,600 ÷ 3 = 3,200 kilowatt-hours per month. The electricity rate is 3 cents per kilowatt-hour, which is $0.03 per kilowatt-hour. Multiply the average monthly usage by the rate: 3,200 × $0.03 = $96. Therefore, George's average monthly electricity cost was $96. Equivalently, the total three-month cost is 9,600 × $0.03 = $288, and $288 ÷ 3 also equals $96. This uses the arithmetic-mean process: add the three monthly values and divide by the number of months. For further review of calculating averages, see Khan Academy's average word-problem guide and Math Is Fun's explanation of the mean.