DUMPSARENA

American College Testing: English, Math, Reading, Science, Writing

Test Prep ACT-Test

Version Demo

Total Demo Questions: 20

Total Premium Questions: 1037

Buy Premium PDF

https://dumpsarena.co

sales@dumpsarena.co

sales@dumpsarena.co
dumpsarena.co

Topic Break Down

Topic	No. of Questions
Topic 1, English	317
Topic 2, Reading	218
Topic 3, Science	224
Topic 4, Math	278
Total	1037

QUESTION NO: 1

Which of the following has a vertex of (4, −4)?

A. y = 5(x − 4)2 − 4

B. y = 5(x + 4)2 − 4

C. y = 5(x – 4)2 + 4

D. y = 5(x + 4)2 + 4

ANSWER: A

Explanation:

Plug in (x, y) and solve for equations to determine the answer.

QUESTION NO: 2

DIRECTIONS: In the passage below, certain phrases are underlined and numbered . The question will present alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is the best, choose "NO CHANGE".

Rio de Janeiro

[§1] Rio de Janeiro, Brazil is a fantastic place to visit. It's alarming <1> that Rio is called the "Wonderful City." Beaches, mountains, and forests await its visitors, who can tour for days and still not experience everything the city has to offer. When I visit, I always have a great time with my boyfriend. <2> At the end of a busy day exploring nature, gloomy <3> travelers can unwind at one of the beachfront hotspots for coconut water and live samba music.

[§2] Rio's most famed attractions are Sugarloaf Mountain and Christ the Redeemer statue. However, <4> these destinations welcome over 2.8 million international tourists each year.

Sugarloaf Mountain is located in the city's south zone right near to the vast Atlantic Ocean. <5> Its peak is at 1300 feet, and accessible by two cable cars that take less than five minutes to arrive. Visitors enjoy 360-degree panoramic views of Rio, and can shop or dine at several locations on the mountain.

[§3] (1) Christ the Redeemer stands on the Corcovado Mountain, recently named one of the new seven wonders of the world. (2) With arms outstretched, the concrete Christ was built between 1922 and 1931, to resemble embracing the people of Rio. (3) Millions of tourists recreate the attraction by taking photos on its pedestal with their own arms outstretched. (4) The statue's pedestal is over 26 feet high, while the statue itself is nearly 100 feet <6>

[§4] There are so many amazing sites to see! <7> Fort Copacabana is a military base and history museum that sits at the south end of Copacabana beach and divides the neighborhood from Ipanema. Visitors explored <8> galleries filled with original military memorabilia from the late nineteenth and early twentieth centuries. There are also exhibits featuring indigenous artwork from some of Brazil's 2000 native tribes. These relics are important for Brazilian history, and tourists are nevertheless blown away <9> at their historical significance.

[§5] Another great place to visit, and for learning about Brazilian history <10> is the Botanical Gardens, built in 1808 by King John VI of Portugal. Children especially enjoy this 346-acre park, which is home to 6500 species of plants and trees and 140 species of birds. Kid-friendly areas are designated for picnics and games, and monkeys that roam the grounds often entertain children by swinging from tree to tree or rummaging for leftover food in the park's trash bins. <11>

[§6] After a busy day of sightseeing Rio's natural settings, because <12> tourists sit at beachfront drink stands and enjoy coconut water sipped from the fruit. Local musicians wander the sands playing Brazilian samba music each night. The sounds of tamborims, surdos, and agogos delight visitors, who, dance <13> all night long to the sounds <14> under the Copacabana moonlight.

<3>:

A. NO CHANGE

B. Tired

C. Angry

D. Overheated

ANSWER: B

Explanation:

B is the correct answer because of appropriate word choice. Travelers can unwind after a busy day. Therefore, the most appropriate word choice is "tired."

QUESTION NO: 3

DIRECTIONS: In the passage below, certain phrases are underlined and numbered . The question will present alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is the best, choose "NO CHANGE".

Annie Smith Peck

[§1] Since a hundred years, <1> the highest mountains in South America have lured climbers from all over the world. But until 1908, Peru's Mt. Huascaran resisted the efforts of all those who attempted to reach its summit. One mountaineer, Annie Smith Peck, vowed to overcome the obstacles and be the first to the top of Mt. Huascaran. In order to succeed, she would have to organize expeditions – deal with reluctant companions –survive bad weather, and <2> climb steep cliffs of ice and rock.

[§2] Peck was born in the United States in 1850. Although she didn't start mountain climbing until she was in her thirties, it <3> soon became clear that she had found her life's work. A natural mountaineer, Peck was soon setting records on expeditions in North America and Europe. She traveled to Bolivia in 1903 and found Mount Huascaran, which had yet to be surmounted, a challenge she simply could not resist. <4>

[§3] (1) Peck mounted four expeditions and made five attempts before she finally conquered Mt. Huascaran. (2) Between those expeditions, Peck returned to the United States to raise money. (3) She received help from many scientific organizations, including the Museum of Natural History. (4) The Museum had also supported Admiral Peary on his trip to the North Pole. (5) Still, Peck struggled at least as much to raise money as she did climbing <5> her beloved mountains.

[§4] In 1908, Peck scraped together the funds for yet another expedition to Mt. Huascaran. This time, she hired two Swiss guides to assist <6> her with the climb. On their first trip up the mountain's slopes, one of the guides became ill, and the

entire team was forced to turn back even though they were very close to the top. Being so close to success was very frustrating for Peck, who could not even prove how close they had come because she had accidentally brought the wrong kind of film and was unable to photograph the climb.

[§5] The team rested for a few days, the guide recovered, and on August 28th, they set off again. The climb was extremely difficult. Steps had to be cut <7>one by one into the steep ice; snow bridges and crevasses had to be carefully crossed. The weather was so cold that everyone suffered from frostbite. When Peck and her two guides were just a short distance from the top, they stopped to determine the exact height of the mountain.

[§6] At that moment, one of the guides took advantage of Peck's distraction and climbed the few remaining feet to the summit so that he was the first to reach the peak. What a jerk! <8>Although Peck was understandably angry, she <9> focused on the triumph of achieving her goal: standing at last on the top of Mt. Huascaran.

<6>:

A. NO CHANGE

B. assisting

C. would assist

D. who had assisted

ANSWER: A

Explanation:

This is correct as it stands.

QUESTION NO: 4

DIRECTIONS: In the passage below, certain phrases are underlined and numbered . The question will present alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is the best, choose "NO CHANGE".

Building a Cork Boat

[§1] As a young boy, John Pollack dreamed of building a full-size boat made entirely of bottle corks. [A] At the age of thirty-four, Pollack sailed his dream down the Douro River in Portugal. It all began as Pollack is likely to point out <1>, with a single cork.

[§2] To amass the staggering number of corks needed to construct the boat, 165,231 in all, Pollack convinced the staff, of several restaurants <2> in Washington, DC, to donate discarded corks for his cause. [B] Pollack eventually received cork donations from a cork-importing company <3> based in Portugal.

[§3] Constructing the boat introduced a challenge of another variety. Pollack finally tried <4> gluing the corks together to create stackable logs, but he soon realized that this strategy was too time-consuming. [C] He calculated that it would have taken him and one other person more then a year's <5> worth of eight-hour days to glue all the corks needed for the boat.

[§4] Piles of corks threatened to take over Pollack's apartment. <6> He used a foam template to assemble a group of corks into a pretty interesting <7> shape. He then fastened each cluster of corks with multiple rubber bands and encased each cluster in fishnet. To bind clusters together and shaping <8> them into flexible columns proved to be both efficient and

architecturally sound. Dozens of friends expedited this proper <9> process by volunteering to help with the construction of the boat.

[§5] The completed cork boat, which resembled a Viking ship, was more impressive than Pollack had ever imagined. [D] In his childhood imagination, he had saw himself <10> floating the boat in his neighbor's swimming pool. But at a length of twenty-two feet, <11> Pollack's masterpiece was best suited with <12> a grand voyage. In 2002, the company that <13> had donated thousands of corks to Pollack's project sponsored the vessel's launch in Portugal. There, during the boat's successful journey on the Douro River, in the country of Portugal, <14> Pollack's dream was fully realized.

<14>:

A. NO CHANGE

B. River, which is a river in Portugal,

C. River in Portugal,

D. River,

ANSWER: D

QUESTION NO: 5

DIRECTIONS: In the passage below, certain phrases are underlined and numbered . The question will present alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is the best, choose "NO CHANGE".

J. K. Rowling

[§1] While many people may get frustrated with train delays, Joanne Rowling turned her experience into a life-changing story. She began writing about a young wizard while delayed at a

Manchester station stop, and brought Harry Potter to life <1> over the next five years. The Philosopher's Stone was the first of seven children's books published under her pen name J. K.

The Harry Potter series has sold over 447 million copies worldwide and been translated into seventy-three languages, including Latin and Ancient Greek. <2>

[§2] When the Philosopher's Stone was published <3> in 1997, the book industry had given up on young readers. It's <4> first edition was a mere 500 books, and most copies were sent to public libraries across England. By the time Rowling's seventh Harry Potter novel was published in 2007, Rowling had already become the woman who put a new face on children's literacy. Harry Potter and the Deathly Hollows, the final installation, has <5> a word count of nearly 1.1 million words, and sold 11 million copies in the first 24 hours of its release. <6>

[§3] Today, Rowling spends much <7> of her time working with her foundation, Lumos, which is named after a spell in the Potter series that brought light into darkness. <8> She founded <9> the nonprofit organization after seeing a photograph of a child in a caged bed who appeared to be screaming through its chain links. Rowling was overcome by the image that she <10> vowed to use her money and popularity to raise awareness of the 8 million children who live in such institutions globally. According to research, over 80 % of orphaned children have living relatives which <11> cannot care for them because of poverty or disability. The staff at Lumos equip families with necessary resources to provide for their children rather than leaving them institutionalized. Lumos' long-term goal is the closure of every orphanage around the world, by returning all children to live with its <12> families, either biological or adoptive.

[§4] Rowling once said, “Happiness can be found in the darkest places if one only remembers to turn on the light”. <13> J. K. Rowling has created happiness for millions of children through makebelieve stories of triumph and real-life stories of hope. <14>

The underlined portion <1> most likely means:

A. Rowling gave birth to a child who she named Harry Potter

B. Rowling created a story about a boy named Harry Potter

C. Rowling was the puppeteer for a marionette called Harry Potter

D. Rowling resuscitated a child named Harry Potter who was riding a train

E. K. Rowling

[§1] While many people may get frustrated with train delays, Joanne Rowling turned her experience into a life-changing story. She began writing about a young wizard while delayed at a
Manchester station stop, and brought Harry Potter to life <1> over the next five years. The Philosopher’s Stone was the first of seven children’s books published under her pen name J. K.
The Harry Potter series has sold over 447 million copies worldwide and been translated into seventy-three languages, including Latin and Ancient Greek. <2>
[§2] When the Philosopher’s Stone was published <3> in 1997, the book industry had given up on young readers. It’s <4> first edition was a mere 500 books, and most copies were sent to public libraries across England. By the time Rowling’s seventh Harry Potter novel was published in 2007, Rowling had already become the woman who put a new face on children’s literacy. Harry Potter and the Deathly Hollows, the final installation, has <5> a word count of nearly 1.1 million words, and sold 11 million copies in the first 24 hours of its release. <6>
[§3] Today, Rowling spends much <7> of her time working with her foundation, Lumos, which is named after a spell in the Potter series that brought light into darkness. <8> She founded <9> the nonprofit organization after seeing a photograph of a child in a caged bed who appeared to be screaming through its chain links. Rowling was overcome by the image that she <10> vowed to use her money and popularity to raise awareness of the 8 million children who live in such institutions globally. According to research, over 80 % of orphaned children have living relatives which <11> cannot care for them because of poverty or disability. The staff at Lumos equip families with necessary resources to provide for their children rather than leaving them institutionalized. Lumos’ long-term goal is the closure of every orphanage around the world, by returning all children to live with its <12> families, either biological or adoptive.
[§4] Rowling once said, “Happiness can be found in the darkest places if one only remembers to turn on the light”. <13> J. K. Rowling has created happiness for millions of children through makebelieve stories of triumph and real-life stories of hope. <14>
The underlined portion <1> most likely means:

ANSWER: B

Explanation:

B is the correct answer because of idioms. Idioms are phrases with meanings that are not apparent based on dictionary definitions. A, C, and D are incorrect because their answers do not fit with the context.

QUESTION NO: 6

(4.8 × 10−7) / (1.6 × 10−11)

A. 3.0 × 104

B. 3.0 × 10−4

C. 3.0 × 10−18

D. 3.2 × 1018

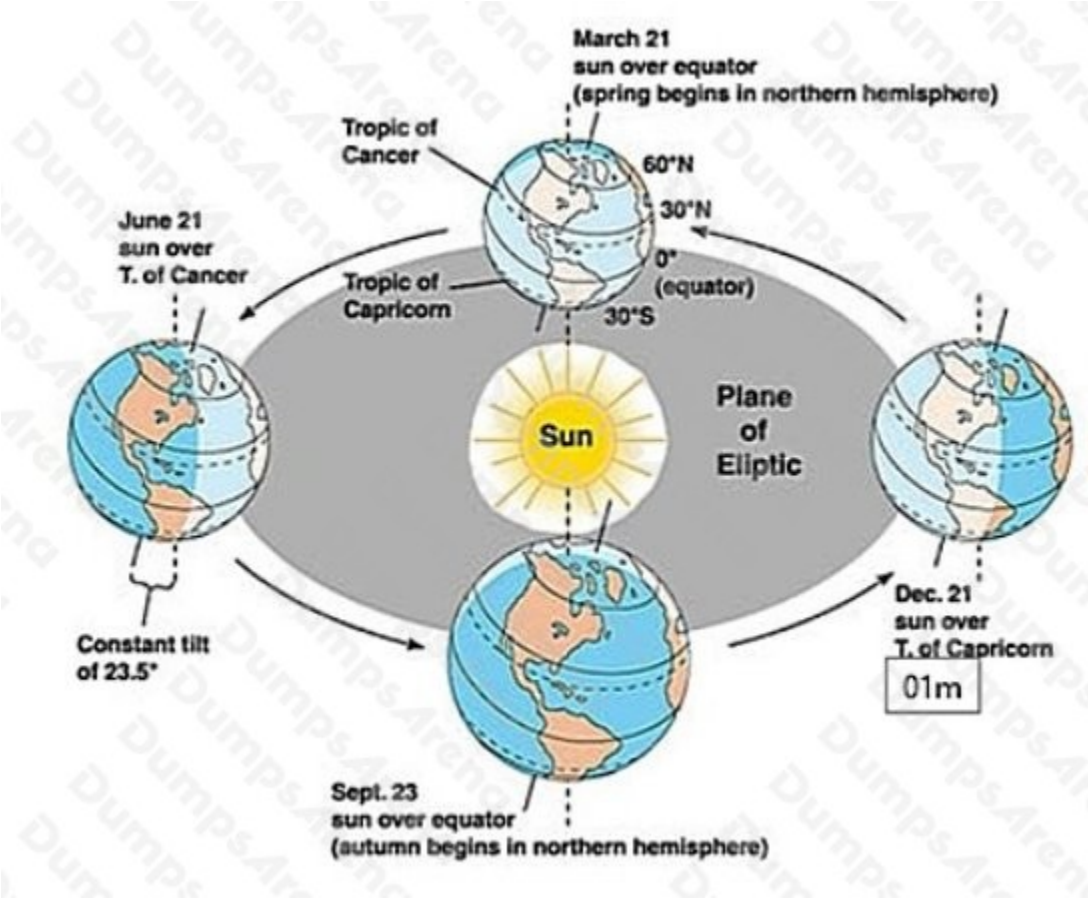
E. 3.2 × 104

ANSWER: A

QUESTION NO: 7

Excerpt from https://schoolworkhelper.net/the-effect-of-the-earth's-rotation-revolution/

THE EFFECT OF THE EARTH'S ROTATION & REVOLUTION



(1) When watching the stars at night, they do appear to move very slowly. This is because the Earth is constantly moving. The Earth completes one "rotation" every twenty-four hours. A rotation iswhen the planet spins around once. The Earth rotates counterclockwise; this is why the Sun "rises" in the East and "sets" in the West. It is not the Sun's movement that causes days, but rather the Earth turning around in front of the Sun. The Earth's axis (the point at which it rotates around, for example, if you were to spin around while standing in one spot, your axis would be an imaginary line running through your head straight down to your feet) is in line with a star named "Polaris". Polaris is also known as the "North Star" since it is directly above the Earth's axis. Since this star is directly above the Earth's axis, it does not appear to move, however the rest of the stars in the sky move around Polaris (for example: when you spin around, the object directly above your head does

not appear to move but everything else seems to spin around that object). Polaris is only seen in the Northern hemisphere and it belongs to the Little Dipper constellation (it's the last star at the end of the "handle").

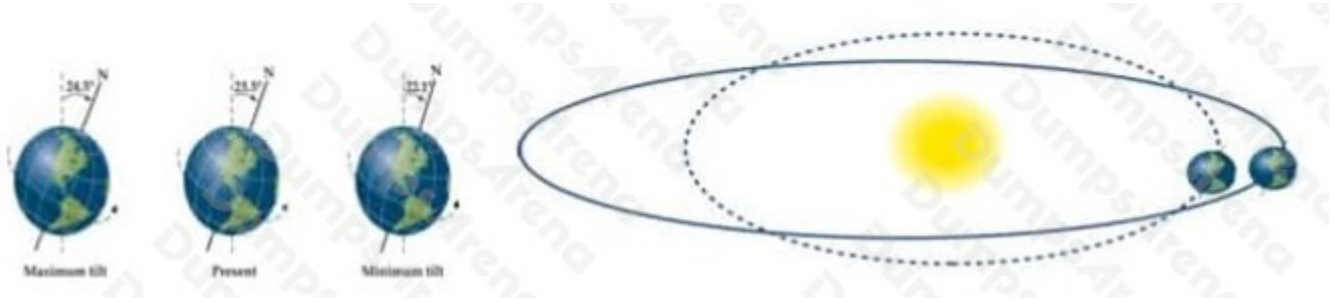
THE EFFECT OF THE EARTH'S REVOLUTION

(2) Another type of motion is known as "revolution". Revolution is when one object completes a circular path around another object. The Earth takes 365.24 days to revolve around the Sun. Thisis why a year is 365 days long. During the year the Earth is angled differently towards the Sun. These changing angles provide us with different Sun intensities and therefore we get four different seasons. Since the Earth is at different positions in space over the year, we see different constellations throughout the year.

(3) Earth is currently in a cool phase characterized by formation of glaciers (glacial maxima), followed by warm periods with glacial melting (interglacial periods). These glacial-interglacial cycles occur at frequencies of about 100,000 years. We are currently in an interglacial period; these have lasted about 23,000 years in the past. The last glacial maximum was about 18,000 years ago.

(4) The glacial-interglacial cycles have been explained by regular changes in the shape of Earth's orbit and the tilt of its axis – Milankovitch cycles.

(5) Circular rotation causes glaciers to melt; more solar radiation; Elliptical = less radiation. The intensity of solar radiation reaching Earth changes, resulting in climatic change. The shape ofEarth's orbit changes in 100,000-year cycles. The angle of axis tilt changes in cycles of about 41,000 years. Earth's orientation relative to other celestial objects changes in cycles of about 22,000 years.



THE EFFECT OF PLANET'S MOTION

(6) Thousands of years ago, people were able to clearly see the night sky (no "light pollution"). The one thing they noticed is that five "stars" seemed to wander faster through the night sky thanother stars. These "stars" were actually the planets Mercury, Venus, Mars, Jupiter, and Saturn. People called these objects "wandering stars". Their names were then changed to planets which is after the Greek word "planetes" which means "wanderers". All planets rotate on their axes and revolve around the Sun, however these times are different for each planet. Planets move through constellations as well. This motion usually takes a few weeks. Many constellations are named after animals. The Greek word for "animal sign" is "zodion". This is why we have star groups called the zodiac constellations. Depending on which zodiac constellation was visible when you were born is the "sign" you have been assigned. For example: Aquarius, Leo, Gemini, Sagittarius, etc.

Many people believe that zodiac signs determine certain traits and characteristics of people. This is known as "astrology" and is not a legitimate science based on truth or facts. Astrology is simply for entertainment.

REVOLUTION AROUND THE SUN VS. ROTATION UPON AXIS

(7) Revolve, as in orbiting the Sun? Yes, all the planets in our solar system orbit the Sun in the same direction Earth does. Some comets and asteroids orbit backwards, and some (more socomets than asteroids) orbit virtually perpendicular to the plane of Earth's orbit.

(8) Rotate, as to spin on ones axis (the thing that causes day and night on Earth)? Earth rotates counter-clockwise, as seen from above Earth's north pole, the same direction it revolves aroundthe Sun. But two planets (used to be 3, when Pluto was

a planet) rotate clockwise – Venus and Uranus. Some might quibble about Uranus, as it spins on its side, but technically it rotates clockwise.

(9) Why do they all revolve in the same direction, and most rotate in the same direction? Because of the way the solar system formed. It formed out of a nebula – a giant cloud of gas and dust inspace. This cloud had a slight rotation to it. Gravity caused the dust and gas to come together, but since the nebula was spinning, it collapsed into a disk instead of a sphere. The center of the disk, that's where the Sun formed. The rest of the disk (now rotating quite nicely) is where the planets formed. So all the planets revolve in the same direction because that's the direction the original nebula was rotating.

(10) Why do some planets now rotate backward? They got clobbered by one or more large asteroids while they were forming, which caused their rotation rate/direction to change. Earth gotclobbered, too, at least once – that's how we got our Moon!

According to the passage, the last glacial maximum period occurred about:

A. 18,000 years ago.

B. 23,000 years ago.

C. 100,000 years ago.

D. 41,000 years ago.

ANSWER: A

Explanation:

Explained in the last sentence of the third paragraph.

QUESTION NO: 8

Sedimentary rocks (which form from sediment) are thought to be deposited in cycles that occur in discrete packages called sequences. Each sequence constitutes a complete cycle. The cause for the cyclist has been linked to sea level change, uplift of continents, climate change, and changes in earth's orbit. These packages are thought to have a duration ranging from 50,000 to 200 million years.

One theory states that the sequences that occur on a scale of every 200,000 to 10 million years are usually caused by changes in the global ice volume. As temperatures increase and glaciers melt, sea level rises and new marine sediment – which is typically coarser-grained than underlying sediments is deposited along shorelines. As global temperatures decrease and glaciers build up, sea level falls and shoreline environments are eroded.

In order to test this theory, two studies were undertaken which enable us better to understand the relations between glaciations (periods of maximum cooling and glacier build-up) and marine sedimentary sequences.

Study 1

A 400m long core of sedimentary rock from an ancient shoreline in the United States was analyzed. The core represents marine sediments deposited over the last 20 million years. The researchers observed patterns of erosion and change in sediment size and determined that unique sequences occurred every 50,000, 100,000, 5 million, and 12 million years.

Study 2

At several sites beneath the Atlantic Ocean, a 50m core was removed from 500,000-year-old ocean floor marine sediments. These sediments contained abundant microfossils that can be used in determining the nature of past climates. The

researchers studied the abundance and taxonomy of these microfossils and deduced patterns of warming and cooling global temperatures. They found that periods of maximum cooling (peak glaciations) occurred 75,000, 175,000, 375,000, and 475,000 years ago.

Which of the following characteristics of a sequence of marine sediments or sedimentary rocks would make it unsuitable for a study such as this?

I. an age of only 30,000 to 40,000 years

II. depth of ocean water

III. location away from the polar ice caps

A. I only

B. II and II only

C. I, II, and III

D. I and III only

E. an age of only 30,000 to 40,000 years
II. depth of ocean water
III. location away from the polar ice caps

ANSWER: A

Explanation:

The passage makes no mention of the relevance of ocean depth or proximity to polar ice caps, but it does mention that these sequences have a minimum age of 50,000 years.

QUESTION NO: 9

A study was conducted to examine whether female Blattella germanica (a species of cockroach) prefer to eat cat food, cheese, ham, or peanuts. First, 200 mg of each of the 4 foods was separately placed into a single box. Then, adult female

B. germanica were added to the box. Figure 1 shows how the mass, in mg, of each food in the box changed over time after the addition of the

B. germanica. Table 1 shows the percent by mass of carbohydrates, lipids, proteins, and water, respectively, present in each of the 4 foods tested in the study.

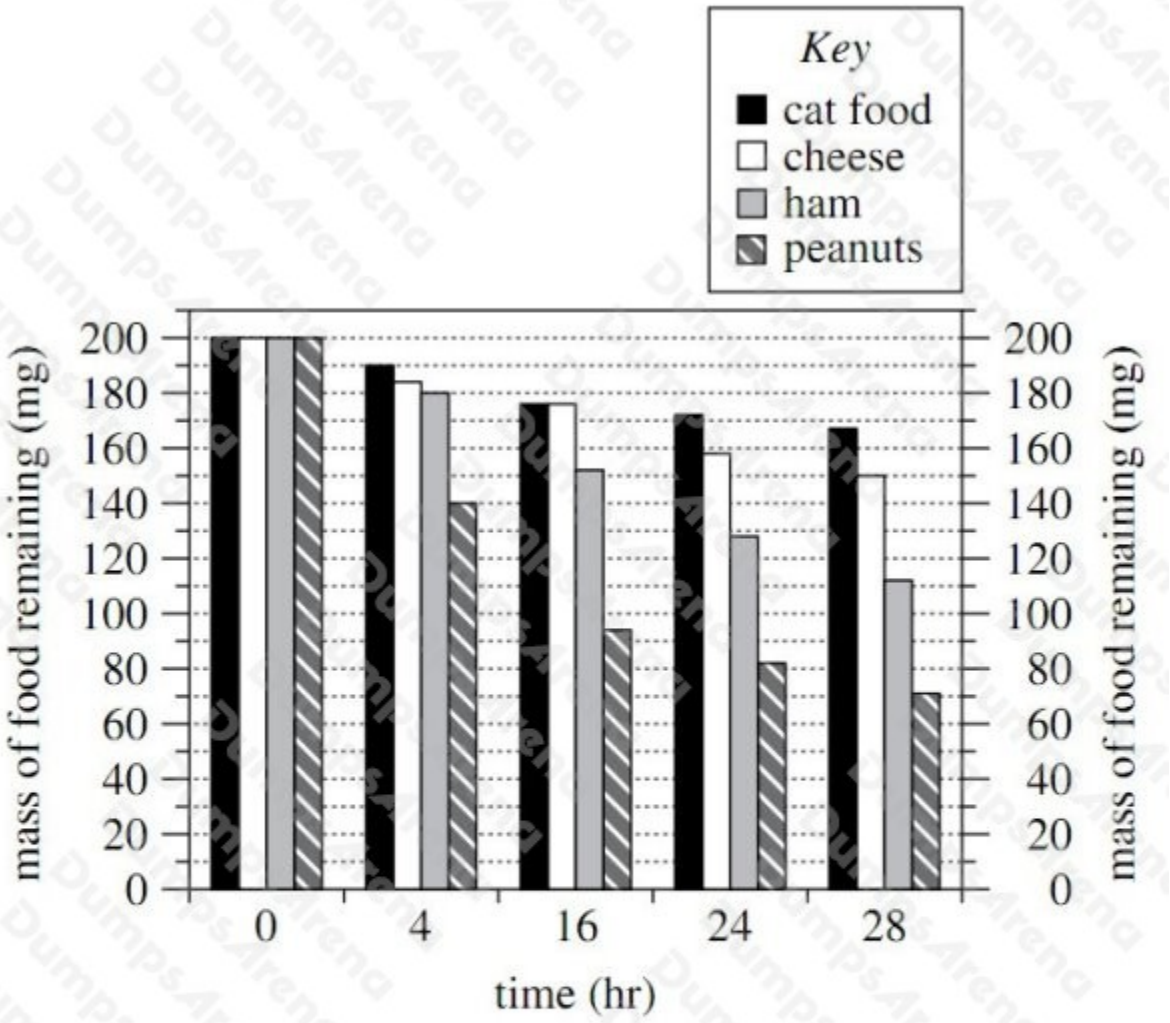


Figure 1

Figure adapted from Prachumporn Lauprasert et al., "Food Preference and Feeding Behavior of the German Cockroach, *Blattella germanica* (Linnaeus)." ©2006 by the Faculty of Science, Chulalongkorn University.

Table 1

Food	Percent by mass			
	carbohydrates	lipids	proteins	water
Cat food	1.2	6.0	16.9	66.2
Cheese	0.5	27.7	20.8	48.4
Ham	0.0	18.2	23.6	57.1
Peanuts	15.8	49.6	26.2	6.4

Table adapted from U.S. Department of Agriculture, *USDA National Nutrient Database for Standard Reference, Release 24*. 2011.

Based on Table 1, when 200 mg of each of the 4 foods was placed in the box, water accounted for more than 100 mg of the mass of which food(s)?

A. Peanuts only

B. germanica were added to the box. Figure 1 shows how the mass, in mg, of each food in the box changed over time after the addition of the
germanica. Table 1 shows the percent by mass of carbohydrates, lipids, proteins, and water, respectively, present in each of the 4 foods tested in the study.

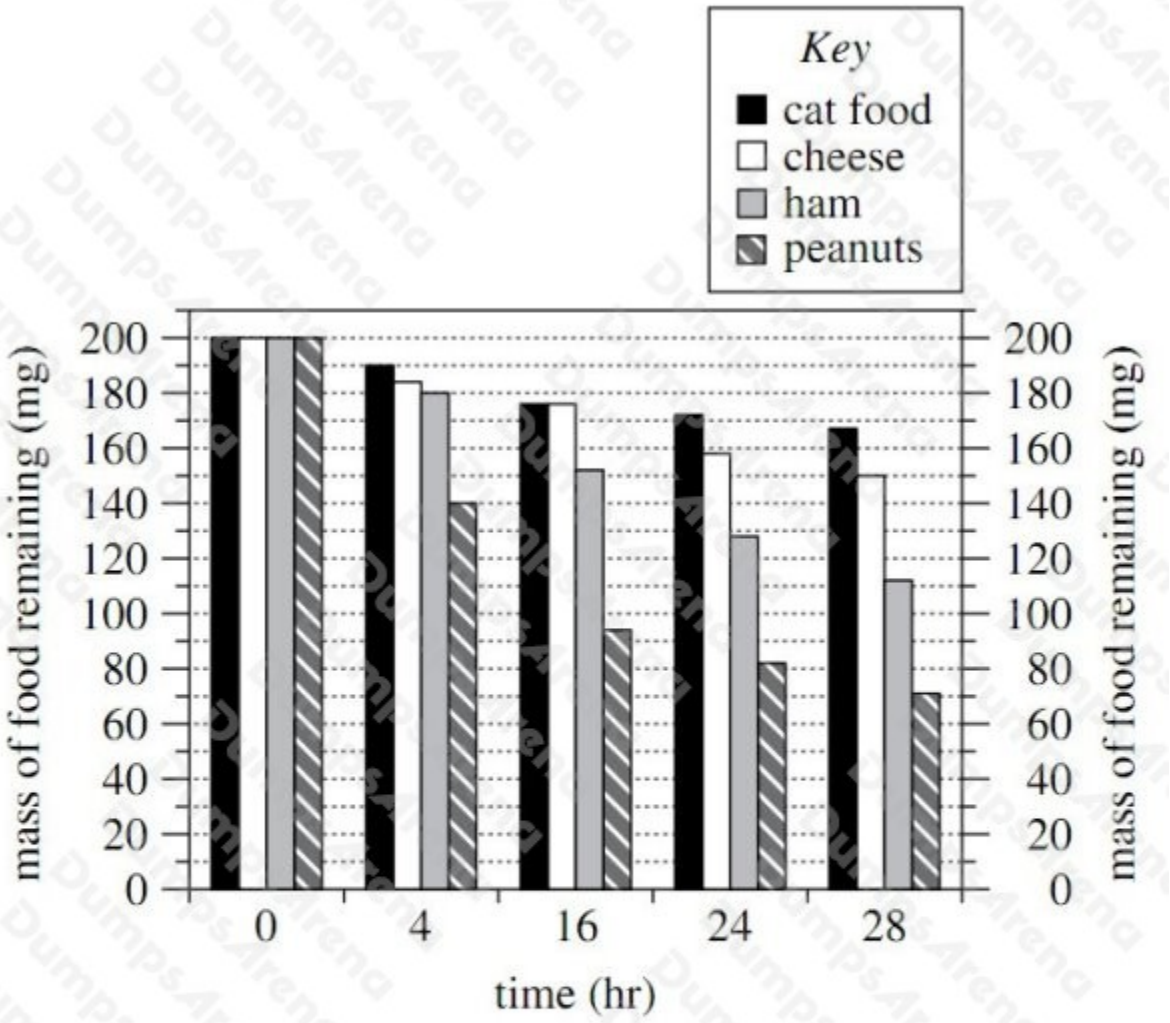


Figure 1

Figure adapted from Prachumporn Lauprasert et al., "Food Preference and Feeding Behavior of the German Cockroach, *Blattella germanica* (Linnaeus)." ©2006 by the Faculty of Science, Chulalongkorn University.

Table 1

Food	Percent by mass			
	carbohydrates	lipids	proteins	water
Cat food	1.2	6.0	16.9	66.2
Cheese	0.5	27.7	20.8	48.4
Ham	0.0	18.2	23.6	57.1
Peanuts	15.8	49.6	26.2	6.4

Table adapted from U.S. Department of Agriculture, *USDA National Nutrient Database for Standard Reference, Release 24*. 2011.

Based on Table 1, when 200 mg of each of the 4 foods was placed in the box, water accounted for more than 100 mg of the mass of which food(s)?
Cat food and ham only

C. Cheese and peanuts only

D. Cat food, cheese, and ham only

ANSWER: B

QUESTION NO: 10

Which of the following expressions is a factor of x3 − 64?

A. x − 4

B. x + 4

C. x + 64

D. x2 + 16

E. x2 − 4x + 16

ANSWER: A

QUESTION NO: 11

Exercising elicits an acute hormonal response. The magnitude of this response is dependent on the mode and intensity of exercise. Figure 1 shows the concentration of two hormones in response to exercise as measured by researchers in pmol/l and nmol/l (1 pmol/l = .001 nmol/l). Measurements were taken at multiple timestamps before beginning the workout, after the completion of each exercise in the workout, 15 minutes after completing the workout, and 30 minutes after completing the workout. Changes in these hormones were tracked across two different exercise conditions, or modes, defined as MR and FR.

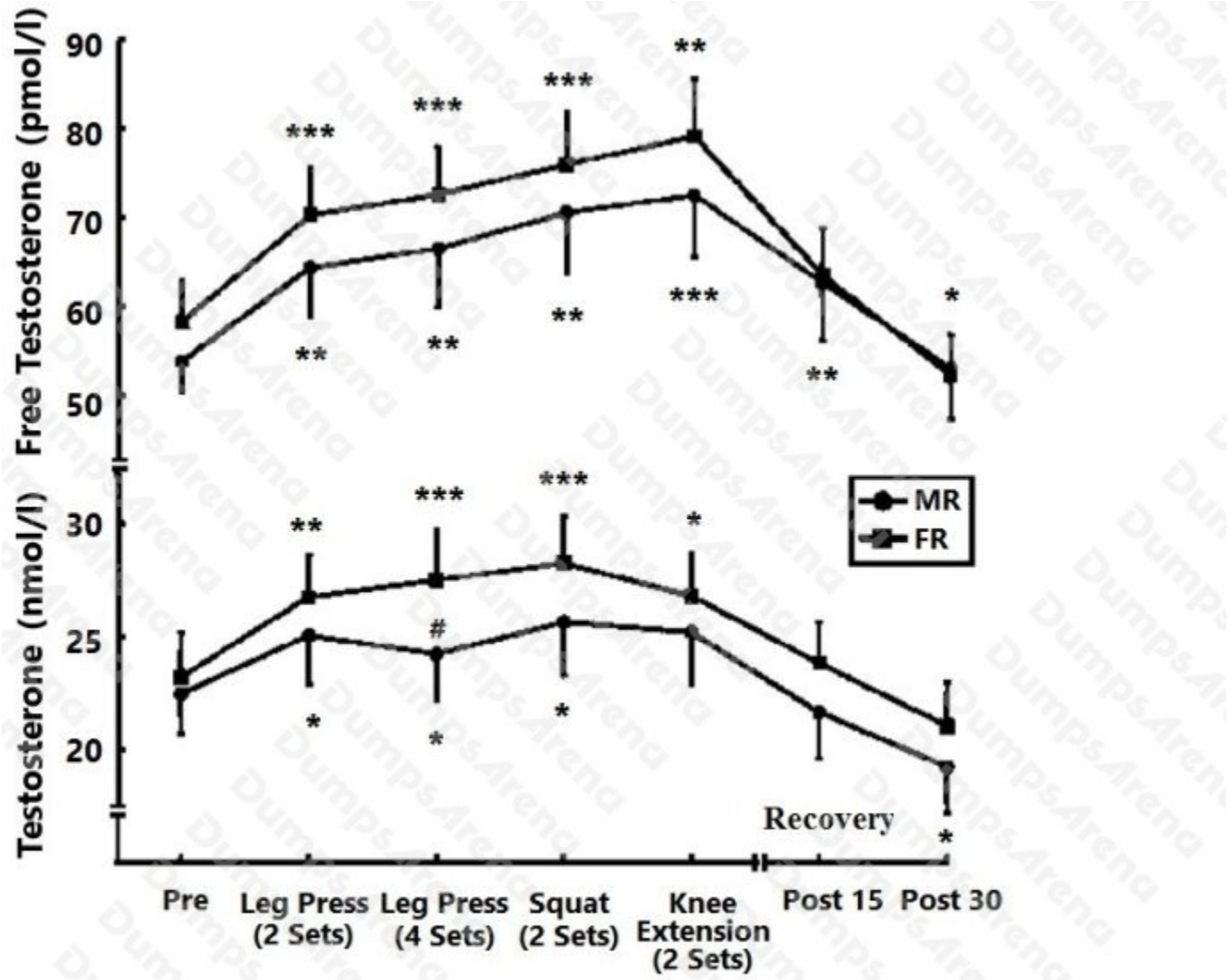


Figure adapted from Acute hormonal and neuromuscular responses and recovery to forced vs. Maximum repetitions multiple resistance exercises by Ahtianinen et al.

In both the MR and FR conditions, Testosterone concentration is implied to peak by a certain timestamp. What is that timestamp?

A. Knee Extension (2 Sets)

B. Post 30

C. Squat (2 Sets)

D. Leg Press (4 Sets)

ANSWER: C

Explanation:

Testosterone concentration peaks at the Squat timestamp. Only consider the bottom portion of the graph as the question exclusively relates to Testosterone. Unlike Free Testosterone, Testosterone does not continue to increase in concentration throughout the duration of the workout. It peaks during the squat before it begins declining.

QUESTION NO: 12

The length of an edge of a cube is equal to half the height of a cylinder that has a volume of 160π cubic units. If the radius of the cylinder is 4 units, what is the surface area of the cube?

A. 64 square units

B. 96 square units

C. 100 square units

D. 125 square units

E. 150 square units

ANSWER: E

Explanation:

The volume of a cylinder is equal to πr2h. The volume of the cylinder is 160π and its radius is 4. Therefore, the height of the cylinder is equal to:

160π = π × 42 × h 160 = 16h h = 10

The length of an edge of the cube is equal to half the height of the cylinder. The edge of the cube is 5 units. The surface area of a cube is equal to 6e2, where e is the length of an edge of the cube. The surface area of the cube = 6 × 52 = 6 × 25 = 150 square units.

QUESTION NO: 13

The population (x) of town (y) since 2000 can be estimated by the equation x = 1.0635z + 3,250, where z is the number of years since 2000 and 0 ≤ z ≤ 20. In the context of this equation, what does the number 1.0635 most likely represent?

A. The estimated population of town (y) in 2000.

B. The estimated population of town (y) in 2017.

C. The factor by which the population of town (y) has grown annually.

D. The factor by which the population of town (y) has decreased annually.

ANSWER: C

Explanation:

No negative numbers so there is an increase, not decrease underway. The decimal sets off growth, too.

QUESTION NO: 14

Which of the following is the equation of a parabola whose vertex is at (5, −4)?

A. y = (x − 5)2 − 4

B. y = (x + 5)2 − 4

C. y = (x − 5)2 + 4

D. y = (x + 5)2 + 4

E. y = x2 − 29

ANSWER: A

Explanation:

The equation of a parabola with its turning point five units to the right of the y-axis is written as y = (x − 5)2. The equation of a parabola with its turning point four units below the x-axis is written as y = x2 − 4. Therefore, the equation of a parabola with its vertex at (5, −4) is y = (x − 5)2 − 4.

QUESTION NO: 15

DIRECTIONS: In the passage below, certain phrases are underlined and numbered . The question will present alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is the best, choose "NO CHANGE".

President Obama – Becoming an American President

[§1] President Obama was born in Honolulu, Hawaii two years after the territory was admitted to the Union as the 50th state. <1> He grew up mostly in Hawaii, but also spent one year of his childhood in Washington State and four years in Indonesia. After graduating from Columbia University in 1983. <2> He worked as a community organizer in Chicago. <3> In 1988 Obama enrolled in Harvard Law School, where he was the first black president of the Harvard Law Review. After graduation, he became a civil rights attorney and professor, teaching constitutional law at the University of Chicago Law School from 1992 to 2004. Obama represented the 13th District for three terms in the Illinois Senate from 1997 to 2004, when he ran for the U.S. Senate. Obama received national attention in 2004 with his unexpected March primary win; his well-received July Democratic National Convention keynote address, and his landslide November election to the

Senate. <4> In 2008, Obama was nominated for president, a year after his campaign began, and after a close primary campaign against Hillary Clinton. He was elected over Republican John McCain, and was inaugurated on January 20, 2009. Nine months later, Obama was named the 2009 Nobel Peace Prize laureate. <5>

[§2] During his first two years in office, Obama signed many landmark bill. <6> Main reforms were the Patient Protection and Affordable Care Act (often referred to as “Obamacare”); the Dodd-

Frank Wall Street Reform and Consumer Protection Act; and the Don't Ask, Don’t Tell Repeal Act of 2010. <7> The American Recovery and Reinvestment Act of 2009 and Tax Relief,

Unemployment Insurance Reauthorization, and Job Creation Act of 2010, served as economic stimulus amidst <8> the Great Recession, but the Republican party regained control of the U.S. House of Representatives in 2011. After a lengthy debit <9> over the national debt limit, Obama signed the Budget Control and the American Taxpayer Relief Acts. In foreign policy, Obama increased U.S. troop levels in Afghanistan, reduced nuclear weapons with the U.S.-Russian New START

Treaty, and ended military involvement in the Iraq War. He ordered military involvement in Libya in opposition to Muammar Gaddafi, and the military operation that resulted in the death of Osama bin Laden. <10>

<6>:

A. NO CHANGE

B. During his first two years in office, Obama signed many landmarks bill.
D uses unnecessary commas around the words “in office.”

C. During his first two years in office, Obama signed many landmark bills.

D. During his first two years, in office, Obama signed many landmark bills.

ANSWER: C

Explanation:

C is correct. If he signed many, they would have to be plural, so it can’t be A or

B. D uses unnecessary commas around the words “in office.”

QUESTION NO: 16

DIRECTIONS: In the passage below, certain phrases are underlined and numbered . The question will present alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is the best, choose "NO CHANGE".

Annie Smith Peck

[§1] Since a hundred years, <1> the highest mountains in South America have lured climbers from all over the world. But until 1908, Peru’s Mt. Huascaran resisted the efforts of all those who attempted to reach its summit. One mountaineer, Annie Smith Peck, vowed to overcome the obstacles and be the first to the top of Mt. Huascaran. In order to succeed, she would have to organize expeditions – deal with reluctant companions –survive bad weather, and <2> climb steep cliffs of ice and rock.

[§2] Peck was born in the United States in 1850. Although she didn’t start mountain climbing until she was in her thirties, it <3> soon became clear that she had found her life’s work. A natural mountaineer, Peck was soon setting records on expeditions in North America and Europe. She traveled to Bolivia in 1903 and found Mount Huascaran, which had yet to be surmounted, a challenge she simply could not resist. <4>

[§3] (1) Peck mounted four expeditions and made five attempts before she finally conquered Mt. Huascaran. (2) Between those expeditions, Peck returned to the United States to raise money. (3) She received help from many scientific organizations, including the Museum of Natural History. (4) The Museum had also supported Admiral Peary on his trip to the North Pole. (5) Still, Peck struggled at least as much to raise money as she did climbing <5> her beloved mountains.

[§4] In 1908, Peck scraped together the funds for yet another expedition to Mt. Huascaran. This time, she hired two Swiss guides to assist <6> her with the climb. On their first trip up the mountain’s slopes, one of the guides became ill, and the entire team was forced to turn back even though they were very close to the top. Being so close to success was very frustrating for Peck, who could not even prove how close they had come because she had accidentally brought the wrong kind of film and was unable to photograph the climb.

[§5] The team rested for a few days, the guide recovered, and on August 28th, they set off again. The climb was extremely difficult. Steps had to be cut <7>one by one into the steep ice; snow bridges and crevasses had to be carefully crossed. The weather was so cold that everyone suffered from frostbite. When Peck and her two guides were just a short distance from the top, they stopped to determine the exact height of the mountain.

[§6] At that moment, one of the guides took advantage of Peck's distraction and climbed the few remaining feet to the summit so that he was the first to reach the peak. What a jerk! <8>Although Peck was understandably angry, she <9> focused on the triumph of achieving her goal: standing at last on the top of Mt. Huascaran.

<1>:

A. NO CHANGE

B. Through the passing of a hundred years

C. For over a hundred years

D. In the time of the last century

ANSWER: C

Explanation:

This is the most correct and concise choice.

QUESTION NO: 17

DIRECTIONS: In the passage below, certain phrases are underlined and numbered . The question will present alternatives for the underlined part. In most cases, you are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is the best, choose "NO CHANGE".

Planet Earth's Windiest Observatory

[§1] Step outside into blowing snow, freezing fog, 45 mph winds with hurricane-force gusts, and a −50° Fahrenheit windchill. Welcome to a typical January day at the

Mount Washington Observatory. [A] Weather conditions at this facility, which sits atop its <1> namesake's 6,288-foot peak in New Hampshire, has earned <2> the location the nickname "Home of the World's Worst Weather."

[§2] [B] Though somewhat diminutive compared to other mountains, (Colorado's Pikes Peak, <3> for example, is more than twice its height), Mount Washington is the tallest peak in the Presidential Range. <4> The peak stands at the confluence of three major storm tracks, and its steep slopes force <5> rising winds to accelerate. In fact, scientists in 1934 recorded a surface wind speed (of 231 mph): <6> one of the fastest ever recorded.

[§3] In one study, researchers used a laser beam and advanced optical techniques to measure winds. The observatory also keeps detailed weather records that scientists have used to track climate trends and weather patterns. The <7> observatory has also advanced scientists' understanding of clouds, of ice physics, <8> and the atmosphere.

[§4] To conduct all this research, staff are on-site year-round. Observers, who work <9> several twelve-hour shifts over the course of a week. To change personnel in winter, though, <10> crews ascend the mountain in a vehicle, gripping <11> the snow using revolving tracks similar to those on a military tank. Observers go outside every hour to gather data, which they send to the

National Weather Service. [C]

[§5] Though isolated, the Mount Washington Observatory offers weather enthusiasts many ways to get involved. The observatory takes volunteers and accepts interns, who assist with research. The <12> bold can take part in educational trips to the summit in winter. [D] For those who are planning to make a trip to Mount Washington, <13> the observatory has a website with live video feeds of the summit.

<1>:

A. NO CHANGE

B. their

C. these

D. it's

ANSWER: B

QUESTION NO: 18

In this passage a Mexican American historian describes a technique she used as part of her research.

(1) Doña Teodora offered me yet another cup of strong, black coffee. The aroma of the big, paper-thin Sonoran tortillas filled the small, linoleum-covered kitchen, and I knew that with the coffee Iwould receive a buttered tortilla straight from the round, homemade comal (a flat, earthenware cooking pan) balanced on the gas-burning stove. For three days, from ten in the morning until early evening, I had been sitting in the same comfortable wooden chair, taking cup after cup of black coffee and consuming hot tortillas. Doña Teodora was ninety years old, and although she would take occasional breaks from patting, extending, and turning over tortillas to let her cat in or out, it appeared that I was the only one exhausted at the end of the day. But once out, as I went over the notes, filed and organized the tape cassettes, exhilaration would set in. The intellectual and emotional excitement I had previously experienced when a pertinent document would suddenly appear now waned in comparison to the gestures and words, the joy and anger doña Teodora offered.

(2) She had not written down her thoughts; but the ideas, recollections, and images evoked by her lively oral expression were jewels for anyone who wanted to know about the life of Mexicanas inbooming mining towns on both sides of the Mexico-United States border in the early twentieth century. She never kept a diary. The thought of writing a memoir would have been put aside as presumptuous. But all her life doña Teodora had lived amidst the telling and retelling of family stories. Genealogies of her own family as well as complete and up-to-date information of the marriages, births, and deaths of numerous families that made up her community were all well-kept memories. These chains of generations were fleshed out with recollections of the many events and tribulations of these families. Oral history had proven to be a fertile field for my research on the history of Mexicanas.

(3) My search had begun in libraries and archives – repositories of conventional history. The available sources were to be found in census reports, church records, directories, and other suchstatistical information. These, however, as important as they are, cannot provide one of the essential dimensions of history, the full narrative of the human experience that defies quantification and classification. In certain social groups this gap can be filled with diaries, memoirs, letters, or even reports from others. In the case of Mexicanas in the United States, one of the many devastating consequences of defeat and conquest has been that the traditional institutions that preserve and transfer culture (the documentation of the past) have ignored these personal written sources. The letters, writings, and documents of Mexican people have rarely, if ever, been included in archives, special collections, or libraries. At best, some centers have attempted to collect newspapers published by Mexicans, but the effort was started late. The historian who tries to reconstruct the past from newspapers is constantly frustrated because, although titles abound, collections are scarce and often incomplete.

(4) Although many hours of previous study and preparation had taken me to doña Teodora's kitchen, I was initially unsure of my place. Was I really an insider or were the experiences that hadmade the lives of my interviewees such that, although I could speak Spanish and am Mexicana, I was still an outsider?

(5) I realized, nonetheless, that the richness and depth of the spoken word challenges the comforting theories and models of the social sciences. Mexican history challenges social-sciencemodels derived solely from victorious imperialistic experiences.

(6) Our history cannot be written without new sources. These sources will determine which concepts are needed to illuminate and interpret the past, and these concepts will emerge from thepeople themselves. This will permit the description of events and structures to assume a culturally relevant perspective, thus emphasizing the point of view of the Mexican people. The use of theoretical constructs must follow the voices of the people who live the reality, consciously or not. For too long the experiences of women have been studied according to male-oriented sources and constructs. These must be questioned. For the history of Mexican people, the sources primarily exist in our own worlds. And it is here where we must begin. I often found that as the memory awakened, other sources would emerge. Boxes of letters, photographs, and even manuscripts and diaries would appear. Long-standing assumptions of illiteracy were shattered and had to be reexamined. I saw that constant reevaluation became the rule rather than the exception. I entered women's worlds created on the margin – not only of Anglo life, but of, and outside of, the lives of their own fathers, husbands, sons, brothers, or priests, bosses, and bureaucrats.

The "gap" referred to in paragraph three (3) can best be described as the distance between the:

A. politically motivated view of reality and the personally motivated view of reality.

B. abundance of concrete facts and the shortage of scholarly interpretation of them.

C. pictures presented by traditional historical sources and by subjective personal accounts.

D. information contained in libraries and the information that has been lost.

E. story of one person and the history of a nation as a whole.

ANSWER: C

Explanation:

The "gap" is discussed in the context of written sources and the pictures of life they represent. The author discovered that fact-based conventional records lacked "one of the essential dimensions of history, the full narrative of the human experience". She suggests that "diaries, memoirs, and letters", which are included in the category of "personal written sources", would present that other viewpoint. The "gap" lies between these two types of sources.

QUESTION NO: 19

A rectangle with a perimeter of 30 centimeters is twice as long as it is wide. What is the area of the rectangle in square centimeters?

A. 15

B. 50

C. 200

$6\sqrt{15}$

$3\sqrt{15}$ D.

E.

ANSWER: B

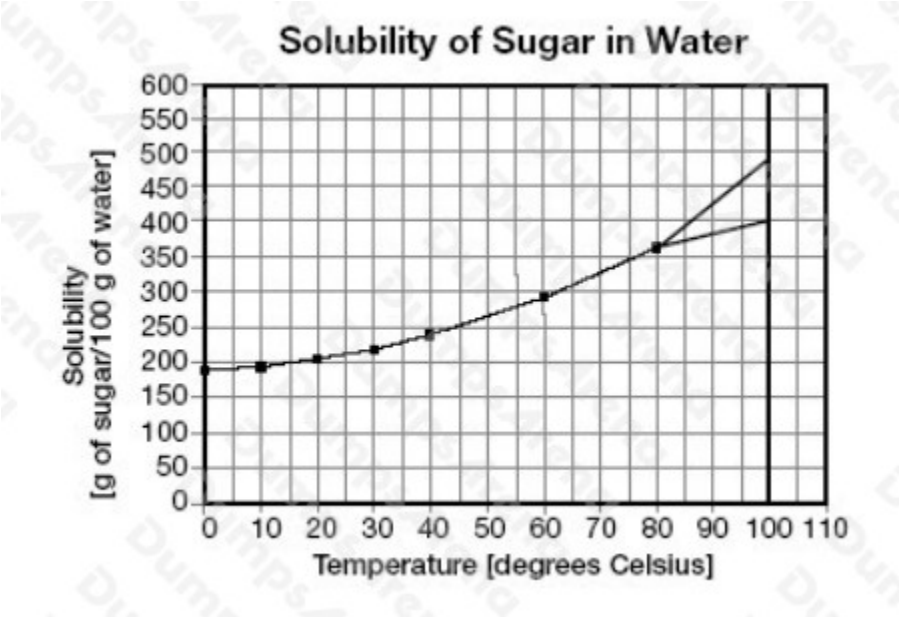
Explanation:

If w = width, then 2w = length. So, the perimeter is 2 × (w + 2w) = 30, and w = 5. Since the width is 5, the length is 2 × 5 = 10. Then the area is 5 × 10 = 50.

QUESTION NO: 20

A mixture that is made by dissolving one compound (solute) in another (solvent) is called a solution. The amount of solute that can be dissolved in a solvent at a given temperature is called solubility. For most substances, solubility increases with temperature. When the amount of solute dissolved in a solvent exceeds the solubility, the solution is called supersaturated. Rock candy can be made by dissolving as much sugar in water, as solubility would allow at a high temperature, and then slowly cooling the solution to room temperature. If a thin string is dipped into it and left in the solution, the sugar in excess of the solubility at room temperature will form sugar crystals around the string, making the sweet rock candy. The solubility (in grams of sugar per

100 grams of water) as a function of temperature (in degrees Celsius) is plotted in the graph below.



Solubility is defined as:

A. a supersaturated mixture.

B. a mixture that is made by dissolving a solute in a solution.

C. the amount of solute that can be dissolved in a solvent at a given temperature.

D. the temperature that causes super saturation.

ANSWER: C

Explanation:

According to the passage, solubility is defined as the amount of solute that can be dissolved in a solvent at a given temperature.