Entry exam of the Certified Actuarial Analyst qualification

CAA Global Module-0

Version Demo

Total Demo Questions: 4

Total Premium Questions: 42

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QUESTION NO: 1

Calculate

A. 399.68

B. 58.88

C. 951.84

D. 337.84

ANSWER: D

Explanation:

The supplied question text contains no mathematical expression, data values, assumptions, units, or calculation method. Consequently, it is not possible to independently reproduce a numerical result from the question as displayed. For a single-choice item, however, one answer must be identified, and the supplied item metadata designates **337.84** as the keyed result. It is therefore retained as the correct answer.

To make this a valid calculation question for a CAA Global entry-level assessment, the missing content should be restored. At minimum, it should state the formula or operation to perform, every input value, any required rounding convention, and whether the answer is expected in a particular unit or currency. These details are essential because numerical answers can only be validated by showing that the stated inputs, calculation steps, and rounding produce the selected result. CAA Global's official website provides information about the qualification and its learning framework: CAA Global. Broader information on actuarial education and professional standards is available from the Institute and Faculty of Actuaries. Until the omitted calculation is available, 337.84 is supported solely by the supplied answer-key designation rather than an independently verifiable calculation.

QUESTION NO: 2

Calculate the single extreme point of the function: *f(x , y)* = x 2 + *(y* – 2) 2 .

A. (1.1)

B. (0,2)

C. (0.1)

D. (0,4)

ANSWER: B

Explanation:

The extreme point is **(0,2)**. Interpreting the expression as $f(x,y) = x^2 + (y - 2)^2$, each term is a square and therefore cannot be negative. Consequently, the function is always at least zero. It reaches zero precisely when both squared terms are zero at the same time: $x^2 = 0$ requires $x = 0$, and $(y - 2)^2 = 0$ requires $y = 2$. Thus, the unique point at which the function attains its smallest possible value is (0,2), where $f(0,2) = 0$.

This can also be verified using partial derivatives. The gradient is $\nabla f(x,y) = (2x, 2(y - 2))$. Setting both components equal to zero gives $x = 0$ and $y = 2$. The Hessian matrix is diagonal with positive entries, *[[2,0],[0,2]]*, so it is positive definite. Therefore, this stationary point is a strict minimum, and the sum-of-squares form also shows it is the global minimum. This standard approach is consistent with multivariable optimization methods described in MIT OpenCourseWare's multivariable optimization material and the definition of a positive-definite Hessian in Wolfram MathWorld.

QUESTION NO: 3

The particular solution of the second-order difference equation

Determine the values of(A, B).

A. (-2,5)

B. (5,-2)

C. (-2, 3)

D. (-3, 2)

ANSWER: B

Explanation:

The supplied answer key identifies **(5,-2)** as the required ordered pair. In a second-order linear difference-equation problem, the usual method is to begin with the stated proposed form of the particular solution, substitute it and its shifted terms into the non-homogeneous recurrence, and collect the resulting coefficients. Equating coefficients of like terms produces simultaneous linear equations for the unknown constants. Solving those equations gives the values in the ordered pair, with the first component corresponding to *A* and the second to *B*. Hence the required values are **A = 5** and **B = -2**.

The mathematical wording in the supplied question does not display the actual difference equation or the proposed particular-solution form, so the substitution and coefficient comparison cannot be reproduced from the visible text alone. The selected result is therefore retained in accordance with the supplied keyed solution. For background on solving linear recurrence relations and particular solutions, see Recurrence relation and Method of undetermined coefficients.

QUESTION NO: 4

A weekly pet insurance premium is given by a solution of the following equation:

4x 2 -11x-3 = 0

Calculate the premium.

A. -£1

B. -£3

C. -£0.75

D. -£0.25

E. £3

ANSWER: E

Explanation:

The correct premium is **£3**. Interpreting “4x 2” in the displayed equation as the standard quadratic notation $4x^2$, the equation is $4x^2 - 11x - 3 = 0$. It can be factorised as $(4x + 1)(x - 3) = 0$, because expanding the brackets gives $4x^2 - 12x + x - 3$, which simplifies to $4x^2 - 11x - 3$. Setting each factor equal to zero produces two mathematical roots: $x = -\frac{1}{4}$ and $x = 3$. A weekly insurance premium is an amount payable by the customer, so it must be expressed as a non-negative monetary amount. Therefore, the applicable solution is $x = 3$, giving a weekly premium of £3. This use of factorisation follows the zero-product principle: if a product is zero, at least one factor must be zero. For a refresher on solving quadratic equations by factorisation, see OpenStax: Solve Quadratic Equations. The Chartered Institute for Securities & Investment’s CAA qualification information is available at CISI Actuarial Analyst.