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Started on Monday, 13 December 2021, 11:47 AM

State Finished

Completed on Monday, 13 December 2021, 11:48 AM

Time taken 14 secs

Grade 0.00 out of 100.00

Question **1**

Not answered

Marked out of 12.00

Find all real solutions of the system of equations: $2x + y = 5$ and $x^2 + 2xy + y^2 = 7$.

Select one:

- a. All solutions are: $x_1 = \frac{1}{3}(5 + \sqrt{7}), y_1 = \frac{1}{3}(-5 + \sqrt{7})$ and $x_2 = \frac{1}{3}(5 - \sqrt{7}), y_2 = \frac{1}{3}(-5 - \sqrt{7})$.
- b. None of the remaining possibilities is correct.
- c. All solutions are: $x_1 = 5 + \sqrt{7}, y_1 = -5 + \sqrt{7}$ and $x_2 = 5 - \sqrt{7}, y_2 = -5 - \sqrt{7}$.
- d. All solutions are: $x_1 = 5 + \sqrt{7}, y_1 = -5 - 2\sqrt{7}$ and $x_2 = 5 - \sqrt{7}, y_2 = -5 + 2\sqrt{7}$.
- e. The system has no real solutions.

The correct answer is: All solutions are: $x_1 = 5 + \sqrt{7}, y_1 = -5 - 2\sqrt{7}$ and $x_2 = 5 - \sqrt{7}, y_2 = -5 + 2\sqrt{7}$.

Question **2**

Not answered

Marked out of 13.00

Find all real solutions of the equation $x(p-1) + p(x+4) = 2$ depending on a real parameter p .

Select one:

- a. For $p \neq \frac{1}{2}$ is $x = -2$, for $p = \frac{1}{2}$ there is no solution.
- b. The system has no solution for any value of parameter p .
- c. For $p \neq \frac{1}{2}$ is $x = -2$, for $p = \frac{1}{2}$ is x arbitrary.
- d. $x = \frac{1}{2}$ for all values of parameter p .
- e. None of the remaining possibilities is correct.

The correct answer is: For $p \neq \frac{1}{2}$ is $x = -2$, for $p = \frac{1}{2}$ is x arbitrary.

Question 3

Not answered

Marked out of 14.00

Find the solution of the equation $3^{x+2} \cdot 4^{-(x+3)} + 3^{x+4} \cdot 4^{-(x+3)} = \frac{40}{9}$ and decide which of the statements is correct.

Select one:

- a. $x = 0$
- b. The equation has exactly one positive solution.
- c. The equation has exactly one negative solution.
- d. The equation has no solution.
- e. None of the remaining possibilities is correct.

The correct answer is: The equation has exactly one negative solution.

Question 4

Not answered

Marked out of 11.00

Calculate $\frac{3+i}{i} - \frac{2+i}{i-1} + \frac{3-i}{i+1}$.

Select one:

- a. $1 + \frac{7}{2}i$
- b. None of the remaining possibilities is correct.
- c. $1 - \frac{7}{2}i$
- d. $\frac{5}{2} + \frac{7}{2}i$
- e. $\frac{5}{2} - \frac{7}{2}i$

The correct answer is: $\frac{5}{2} - \frac{7}{2}i$

Question 5

Not answered

Marked out of 11.00

Consider the following three numbers written in positional base-5 system: 4232_5 , 2441_5 . Express their difference in the same system.

Select one:

- a. None of the remaining possibilities is correct.
- b. $4232_5 - 2441_5 = 1231_5$.
- c. $4232_5 - 2441_5 = 2241_5$.
- d. $4232_5 - 2441_5 = 241_5$.
- e. $4232_5 - 2441_5 = 1241_5$.

The correct answer is: $4232_5 - 2441_5 = 1241_5$.

Question 6

Not answered

Marked out of 13.00

Find all real solutions of the inequation $\log_{\frac{1}{3}}(x+1) - \log_{\frac{1}{3}}(x-1) \geq \log_{\frac{1}{3}} x$.

Select one:

- a. $x \in [1 + \sqrt{2}, +\infty)$
- b. None of the remaining possibilities is correct.
- c. $x \in (-\infty, 1 - \sqrt{2}] \cup [1, 1 + \sqrt{2}]$
- d. $x \in \left[\frac{1-\sqrt{5}}{2}, \frac{1+\sqrt{5}}{2}\right]$
- e. $x \in (1, 1 + \sqrt{2}]$

The correct answer is: $x \in [1 + \sqrt{2}, +\infty)$

Question 7

Not answered

Marked out of 14.00

The first water filler would fill the pool in 6 hours, the second filler would make it in 8 hours and the drain would empty the pool in 12 hours. We started to fill the pool using both fillers, but we forgot to close the drain. How much time will it take before the pool is full?

Select one:

- a. 4 hours 40 minutes
- b. None of the remaining possibilities is correct.
- c. 2 hours 40 minutes
- d. 3 hours 36 minutes
- e. 4 hours 48 minutes

The correct answer is: 4 hours 48 minutes

Question 8

Not answered

Marked out of 12.00

In how many ways can we select 4 candies out of 10 chocolate candies, 5 nutty candies and 15 vanilla candies? Candies of the same kind are considered identical.

Select one:

- a. 15
- b. 435
- c. 360
- d. 18
- e. None of the remaining possibilities is correct.

The correct answer is: 15

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