Algebra1 Quick Quiz 12132024

Question 1.

The volume, V, of a cylinder with radius r and height h can be found using this equation.

$$V = \pi r^2 h$$

Which of the following equations has been correctly rearranged to solve for h?

Ⓐ $h = V + \pi r^2$

Ⓑ $h = V - \pi r^2$

Ⓒ $h = \frac{\pi r^2}{V}$

Ⓓ $h = \frac{V}{\pi r^2}$

Question 2

The volume, V, of a cylinder with radius r and height h can be found using this equation.

$$V = \pi r^2 h$$

Which of the following equations has been correctly rearranged to solve for r?

Ⓐ $r = \sqrt{\frac{\pi h}{V}}$

Ⓑ $r = \sqrt{\frac{V}{\pi h}}$

Ⓒ $r = \frac{\pi h}{2V}$

Ⓓ $r = \frac{V}{2\pi h}$

Question 3.

The distance a free falling object has traveled can be modeled by the equation $d = \frac{1}{2}at^2$, where a is acceleration due to gravity and t is the amount of time the object has fallen. What is t in terms of a and d?

(1) $t = \sqrt{\frac{da}{2}}$

(3) $t = \left(\frac{da}{d}\right)^2$

(2) $t = \sqrt{\frac{2d}{a}}$

(4) $t = \left(\frac{2d}{a}\right)^2$

Question 4.

A student is asked to solve the equation $4(3x - 1)^2 - 17 = 83$.
The student's solution to the problem starts as

$$4(3x - 1)^2 = 100$$
$$(3x - 1)^2 = 25$$

A correct next step in the solution of the problem is

(1) $3x - 1 = \pm 5$ (3) $9x^2 - 1 = 25$

(2) $3x - 1 = \pm 25$ (4) $9x^2 - 6x + 1 = 5$

Question 5.

Consider this function.

$$f(x) = 3x^2 - 7$$

The graph of $f(x)$ is translated 4 units down to create the graph of $g(x)$.

Which of the following functions represents $g(x)$?

Ⓐ $g(x) = -x^2 - 3$

Ⓑ $g(x) = -x^2 - 11$

Ⓒ $g(x) = 3x^2 - 3$

Ⓓ $g(x) = 3x^2 - 11$

Question 6.

What are the solutions to the equation $x^2 - 8x = 24$?

(1) $x = 4 \pm 2\sqrt{10}$ (3) $x = 4 \pm 2\sqrt{2}$

(2) $x = -4 \pm 2\sqrt{10}$ (4) $x = -4 \pm 2\sqrt{2}$

Question 7.

The area of a square is represented by this expression.

$$g^2 + 8g + 16$$

Which of the following expressions represents the length of one side of the square?

Ⓐ $g + 16$

Ⓑ $g + 8$

Ⓒ $g + 4$

Ⓓ $g + 2$

Question 8.

An arithmetic sequence is represented by this function.

$$f(n) = 3n + 1$$

Which of the following sequences is represented by the function for $n = 1$ through $n = 4$?

Ⓐ 3, 6, 12, 24

Ⓑ 4, 7, 10, 13

Ⓒ 4, 10, 28, 82

Ⓓ 6, 9, 12, 15

Question 9.

Which of the following equations represents a line that has a positive slope and a negative y-intercept?

Ⓐ $3x + y = -6$

Ⓑ $3x + y = 6$

Ⓒ $-3x + y = -6$

Ⓓ $-3x + y = 6$

Question 10.

This table shows a linear relationship between values of x and y.

x	1	2	3	4	5
y	5	3	1	-1	-3

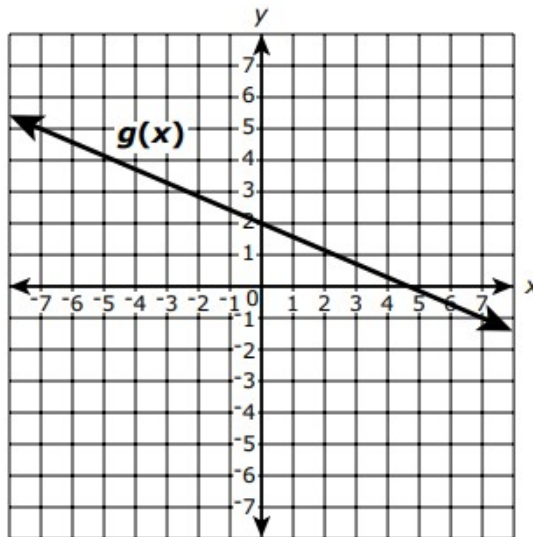Which of the following equations describes the relationship shown in the table?

Ⓐ $y = 5 - 2x$

Ⓑ $y = 5 + 2(x - 1)$

Ⓒ $y = 7 - 2x$

Ⓓ $y = 7 - 2(x - 1)$

Bonus Question
Question 11

This equation represents linear function $f(x)$.

$$f(x) = \frac{5}{4}x - 7$$

This graph represents a **different** linear function, $g(x)$.

Which of the following statements about the slopes and the y-intercepts of the two functions are true?

Select the **three** correct answers.

Ⓐ The slope of $f(x)$ is positive.

Ⓑ The slope of $f(x)$ is negative.

Ⓒ The slope of $g(x)$ is positive.

Ⓓ The slope of $g(x)$ is negative.

Ⓔ The y-intercept of $f(x)$ is less than the y-intercept of $g(x)$.

Ⓕ The y-intercept of $f(x)$ is greater than the y-intercept of $g(x)$.