Algebra Quick Quiz 11202019

Question 1.

Marvin solved this equation.

$$4(x + 5) = 88$$

Marvin created a table showing each step he used to solve the equation. The table also showed the correct explanation for each step.

Which of the following tables shows the correct explanation for each step in Marvin's solution?

Ⓐ

$4(x + 5) = 88$	Given
$4x + 20 = 88$	He multiplied both sides by 4.
$4x = 68$	He added 20 to both sides.
$x = 17$	He multiplied both sides by 4.

Ⓑ

$4(x + 5) = 88$	Given
$4x + 20 = 88$	He used the distributive property.
$4x = 68$	He subtracted 20 from both sides.
$x = 17$	He divided both sides by 4.

Ⓒ

$4(x + 5) = 88$	Given
$4x + 20 = 88$	He used the distributive property.
$4x = 68$	He divided both sides by 20.
$x = 17$	He subtracted 4 from both sides.

Ⓓ

$4(x + 5) = 88$	Given
$4x + 20 = 88$	He added 4 to both sides.
$4x = 68$	He multiplied both sides by 20.
$x = 17$	He divided both sides by 4.

Question 2

This table shows the value of linear function $f(x)$ for different values of x.

x	2	4	5	7
$f(x)$	223	206	197.5	180.5

A student graphed the line that represents $f(x)$ on a coordinate plane. Which statement about the graph of $f(x)$ is true?

Ⓐ The slope of the line is negative, and the y-intercept of the line is negative.

Ⓑ The slope of the line is negative, and the y-intercept of the line is positive.

Ⓒ The slope of the line is positive, and the y-intercept of the line is negative.

Ⓓ The slope of the line is positive, and the y-intercept of the line is positive.

Question 3.

A student has two part-time jobs: babysitting and tutoring. The student earns an hourly wage at each job.

- On Monday, the student earned a total of \$130 for 4 hours of babysitting and 2 hours of tutoring.
- On Tuesday, the student earned a total of \$80 for 3 hours of babysitting and 1 hour of tutoring.

Which of the following systems of equations can be used to find x, the student's hourly wage for babysitting, and y, the student's hourly wage for tutoring?

Ⓐ $2x + 4y = 130$
$x + 3y = 80$

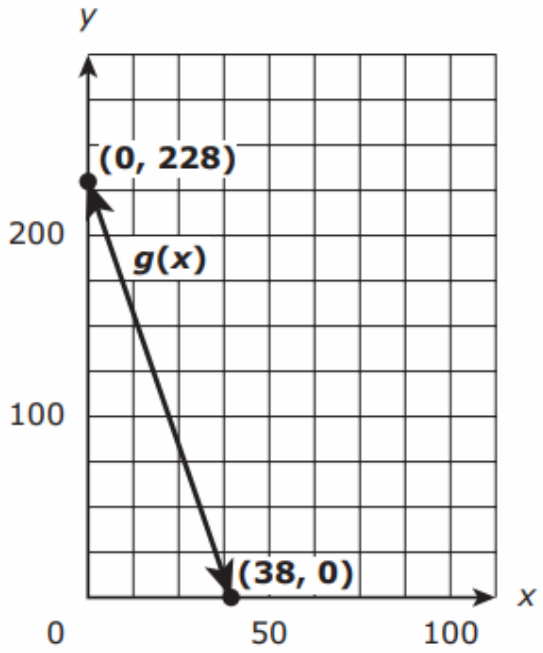
Ⓑ $3x + y = 130$
$4x + 2y = 80$

Ⓒ $4x + 3y = 130$
$2x + y = 80$

Ⓓ $4x + 2y = 130$
$3x + y = 80$

Question 4

The student also graphed linear function $g(x)$ on a coordinate plane, as shown.



Which of the following equations models $g(x)$?

Ⓐ $g(x) = -6x + 228$

Ⓑ $g(x) = -3x + 38$

Ⓒ $g(x) = 3x + 228$

Ⓓ $g(x) = 6x + 38$

Question 5.

The population of each of four towns is predicted to increase or decrease at a constant rate. The equations shown in this table can be used to predict the population, P, of each town t years from today.

Population Predictions

Town	Equation
Pinehill	$P = 800 - 20t$
Rye	$P = 500 + 15t$
Smithfield	$P = 10t + 950$
Troy	$P = -50t + 600$

Part A

Based on the equations in the table, which statements about the populations of these towns are true?

Select **two** true statements.

Ⓐ The population of Troy is decreasing.

Ⓑ The population of Pinehill is increasing.

Ⓒ The populations of Rye and Smithfield are each increasing.

Ⓓ The populations of Smithfield and Troy are each decreasing.

Ⓔ The populations of all four of the towns are each increasing.

Question 6.

Part B

Which of the following lists the towns, based on their populations **today**, from least to greatest population?

Ⓐ Pinehill, Rye, Smithfield, Troy

Ⓑ Rye, Troy, Pinehill, Smithfield

Ⓒ Smithfield, Pinehill, Rye, Troy

Ⓓ Troy, Pinehill, Smithfield, Rye

Question 7.

On a map, 1 inch equals 0.75 mile.

Part A

The distance between a museum and a library on the map is 2 inches.

What is the actual distance, in miles, between the museum and the library?

Enter your answer in the answer boxes at the top of the answer grid **and** completely fill the matching circles.

Question 8.

Which of the following equations is true?

A. $7 \cdot (2 + 3) = 3 + (7 \cdot 2)$

B. $7 \cdot (2 + 3) = 7 + (2 \cdot 3)$

C. $7 \cdot (2 + 3) = 3 \cdot (2 + 7)$

D. $7 \cdot (2 + 3) = 7 \cdot (3 + 2)$

Question 9.

Which of the following is closest to the value of the expression below?

$$\sqrt[3]{120}$$

A. 4

B. 5

C. 9

D. 11

Question 10.

Which of the following is equivalent to the expression below?

$$(p - 4)(p + 2)$$

A. $p^2 - 2p - 8$

B. $p^2 - 4p - 2$

C. $p^2 - 8$

D. $p^2 - 2$

Bonus

Question 11

Find the equation that is equivalent to the quadratic equation shown.

$$x^2 - 6x - 27 = 0$$

A. $x(x - 3) = 27$

B. $(x - 6)^2 = 63$

C. $(x - 3)^2 = 36$

D. $(x - 3)^2 = 28$