Career Readiness Courseware & Credentials

winmath Career-Infused Digital Instruction

Level 4: Expressions and Equations Post-Test

Question 1:

Look at the equation below.

$3(x - 2) = 2(1 + x)$

What value of x makes this equation true?

$x =$ ☐

Question 2:

Look at the system of equations below.

$$y = -2x + 3$$
$$2x + 3y = 1$$

What pair of values (x, y) is the solution to the system of equations?

(☐ , ☐)

Question 3:

When solving an equation in her homework, Caroline does each step correctly and finishes with the answer line below.

$7 = -23$

Which statement is true?

a. The equation has no solution.

b. The equation has exactly one solution.

c. The equation has exactly 30 solutions.

d. The equation has infinitely many solutions.

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Question 4:

Malcolm's family left home to go on vacation. This graph shows the relationship between the distance and the amount of time they traveled during two different parts of the trip.

Approximately how much faster did Malcolm's family travel during the second part of the trip (II) than during the first part of the trip (I)?

a. 10 miles per hour

b. 20 miles per hour

c. 50 miles per hour

d. 60 miles per hour

Question 5:

Which equation has exactly one solution?

a. $x + 2 = x + 2$

b. $x + 2 = x + 3$

c. $5x + 1 = 5x - 1$

d. $5x + 1 = -5x - 1$

Question 6:

Which equation has infinitely many solutions?

a. $4(x + 1) = 5x - 2x + 4$

b. $4(x + 1) = 5x - 2x + 7$

c. $4(x + 1) = 6x - 2x + 4$

d. $4(x + 1) = 6x - 2x + 7$

Question 7:

Bella graphed the lines described by these two equations.

$2x - 5y = 8$

$4x - 7y = 7$

What is the x-coordinate of the point where the two lines intersect?

a. $-\frac{7}{2}$

b. $-\frac{5}{2}$

c. 2

d. 4

Question 8:

Jason is 6 inches taller than Kurt. The sum of their heights is 128 inches. This system of equations can be solved to determine Jason's height in inches, j, and Kurt's height in inches, k.

$j - k = 6$
$j + k = 128$

What is Kurt's height?

a. 61 inches

b. 64 inches

c. 67 inches

d. 73 inches

Question 9:

Each page of a photo album has 6 photographs, except for the last page, which has 3. There are a total of 105 photographs in the album. The equation below can be used to find n, the number of pages in the photo album.

$6(n - 1) + 3 = 105.$

What value of n makes the equation true?

n = [ ]

Question 10:

A glacier is 16,000 meters in length. The length of the glacier is decreasing by 200 meters per year. The equation below can be used to find t, the number of years it will take the glacier to reach a length of 10,000 meters.

$16{,}000 - 200t = 10{,}000$

What value of t makes the equation true?

t = [ ]

Question 11:

The coordinates of four points are shown below.

A (2, −4) B (0, 2) C (0, 7) D (3, 13)

What are the coordinates of the point where $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect?

([ ] , [ ])

Question 12:

Look at the system of equations below.

$$\begin{cases} ax + y = 4 \\ x - y = 5 \end{cases}$$

The x-coordinate of the solution to the system is 3. What is the value of a in this system of equations?

a = [ ]

Question 13:

Miu will solve the system of equations below using the elimination method.

$$\begin{cases} 2x - 3y = 4 \\ x + y = 1 \end{cases}$$

Which of the following describes the appropriate first steps to solve the system of equations by the elimination method?

a. Multiply the first equation by –2, then add the two equations.

b. Multiply the first equation by –2, then subtract the two equations.

c. Multiply the second equation by –2, then add the two equations.

d. Multiply the second equation by –2, then subtract the two equations.

Question 14:

The cost of a watermelon varies proportionately with its weight.

- An 8-pound watermelon costs $12.
- A 10-pound watermelon costs $15.

Write an equation that describes the relationship between w, the weight in pounds of a watermelon, and C, its cost in dollars.

Question 15:

Look at the equation below.

$7(x - 2) = 3(x + 3) + 2(x + 1)$

What value of x makes this equation true?

x =

Question 16:

A car travels 234 miles at an average speed of 45 miles per hour. The equation below can be used to determine h, the number of hours the car travels.

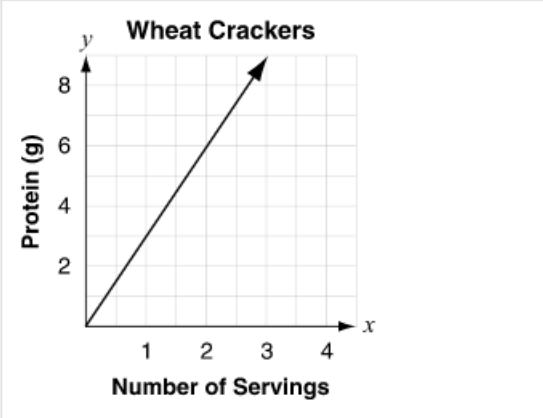
$234 = 45h$

What value of h makes this equation true?

h =

Question 17:

This graph and table show the relationship between the number of servings and the amount of protein in two different snacks.



Mixed Nuts

Number of Servings	Protein (g)
$\frac{1}{2}$	3
$1\frac{1}{2}$	9
$2\frac{1}{2}$	15

How many servings of wheat crackers have the same number of grams of protein as one serving of mixed nuts?

a. less than 1

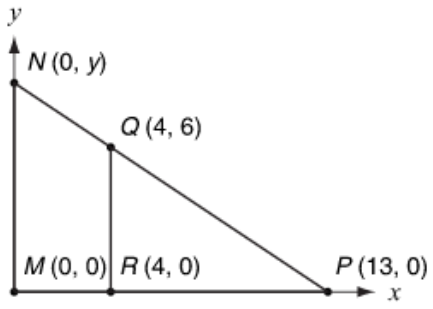
b. exactly 1

c. exactly 2

d. more than 2

Question 18:

Triangle NMP is similar to triangle QRP.



What is the value of the y-intercept of $\overleftrightarrow{QP}$?

y =

Question 19:

William is shopping for clothes

- Four shirts and three ties cost $160.
- Three shirts and four ties cost $155.

What is the cost of a shirt?

a. $20

b. $25

c. $40

d. $55

Question 20:

The routes of two ships that are traveling to the same port are graphed on a coordinate grid.

- The route of one ship is shown by the line $-x + 2y = 12$.
- The route of the other ship is shown by the line $x + 6y = 20$.

What is the y-coordinate of the location of the port?

a. −8

b. −4

c. 2

d. 4

Question 21:

The population of a city and its suburbs is 500,000. The city has a population that is 72,500 more than half the population of the suburbs.

What is the population of the city?