#1

ID: 002dba45

Line k is defined by $y = -\frac{17}{3}x + 5$. Line j is perpendicular to line k in the *xy*-plane. What is the slope of line j?

#2

ID: 01682aa5

Line p is defined by $2y + 18x = 9$. Line r is perpendicular to line p in the *xy*-plane. What is the slope of line r?

A) -9

B) $-\frac{1}{9}$

C) $\frac{1}{9}$

D) 9

#3

ID: 9f3cb472

Line t in the *xy*-plane has a slope of $-\frac{1}{3}$ and passes through the point $(9, 10)$. Which equation defines line t?

A) $y = 13x - \frac{1}{3}$

B) $y = 9x + 10$

C) $y = -\frac{x}{3} + 10$

D) $y = -\frac{x}{3} + 13$

#4

ID: d7c8ba0b

In the *xy*-plane, line t passes through the points $(0, 9)$ and $(1, 17)$. Which equation defines line t?

A) $y = \frac{1}{8}x + 9$

B) $y = x + \frac{1}{8}$

C) $y = x + 8$

D) $y = 8x + 9$

#5

ID: 9c7741c6

On a 210-mile trip, Cameron drove at an average speed of 60 miles per hour for the first x hours. He then completed the trip, driving at an average speed of 50 miles per hour for the remaining y hours. If $x = 1$, what is the value of y ?

#6

ID: bbb0359a

x	1	2	3
y	11	16	21

The table shows three values of x and their corresponding values of y. Which equation represents the linear relationship between x and y?

A) $y = 5x + 6$

B) $y = 5x + 11$

C) $y = 6x + 5$

D) $y = 6x + 11$

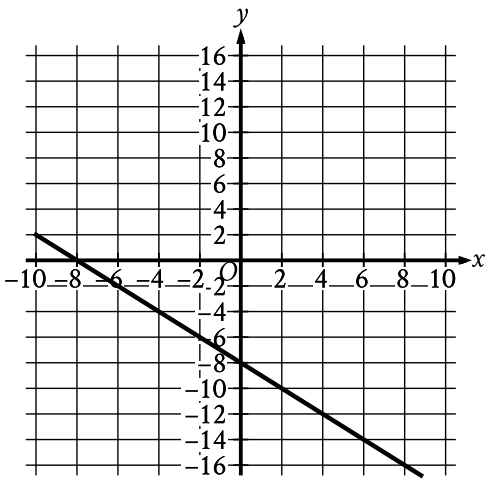
#7

ID: e0f59119

What is the slope of the graph of $y = \frac{1}{3}(29x + 10) + 5x$ in the *xy*-plane?

#8

ID: c307283c



What is an equation of the graph shown?

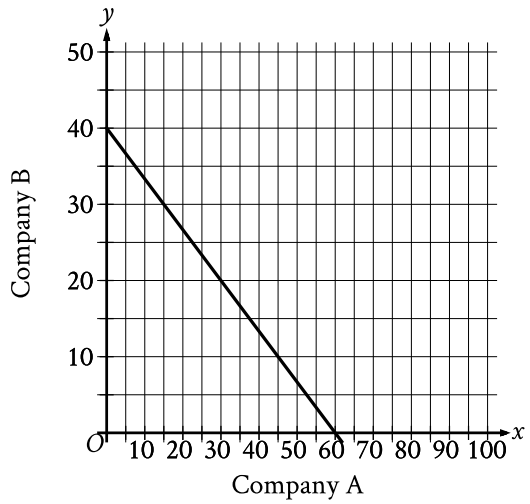
A) $y = -2x - 8$

B) $y = x - 8$

C) $y = -x - 8$

D) $y = 2x - 8$

#9 ID: 2e0290c3



The graph shows the relationship between the number of shares of stock from Company A, x, and the number of shares of stock from Company B, y, that Simone can purchase. Which equation could represent this relationship?

A) $y = 8x + 12$

B) $8x + 12y = 480$

C) $y = 12x + 8$

D) $12x + 8y = 480$

#10 ID: d62ad380

An artist paints and sells square tiles. The selling price P, in dollars, of a painted tile is a linear function of the side length of the tile s, in inches, as shown in the table below.

Side length, s (inches)	Price, P (dollars)
3	8.00
6	18.00
9	28.00

Which of the following could define the relationship between s and P ?

A) $P = 3s + 10$

B) $P = \frac{10}{3}s + 8$

C) $P = \frac{10}{3}s - 2$

D) $P = \frac{3}{10}s - \frac{1}{10}$

#11 ID: 92aa3a94

Line k is defined by $y = 7x + \frac{1}{8}$. Line j is perpendicular to line k in the *xy*-plane. What is the slope of line j?

A) -8

B) $-\frac{1}{7}$

C) $\frac{1}{8}$

D) 7

#12

ID: 431c3038

In an article about exercise, it is estimated that a 160-pound adult uses 200 calories for every 30 minutes of hiking and 150 calories for every 30 minutes of bicycling. An adult who weighs 160 pounds has completed 1 hour of bicycling. Based on the article, how many hours should the adult hike to use a total of 1,900 calories from bicycling and hiking?

A) 9.5

B) 8.75

C) 6

D) 4

#13

ID: 62ef6f73

A total of 2 squares each have side length r. A total of 6 equilateral triangles each have side length t. None of these squares and triangles shares a side. The sum of the perimeters of all these squares and triangles is 210. Which equation represents this situation?

A) $6r + 24t = 210$

B) $2r + 6t = 210$

C) $8r + 18t = 210$

D) $6r + 2t = 210$

#14

ID: 265f2a53

When line n is graphed in the xy-plane, it has an x-intercept of $(-4, 0)$ and a y-intercept of $(0, \frac{86}{3})$. What is the slope of line n?

A) $\frac{3}{344}$

B) $\frac{6}{43}$

C) $\frac{43}{6}$

D) $\frac{344}{3}$

#15

ID: f81a0503

In the xy-plane, line k passes through the points $(0, -5)$ and $(1, -1)$. Which equation defines line k?

A) $y = -x + \frac{1}{4}$

B) $y = \frac{1}{4}x - 5$

C) $y = -x + 4$

D) $y = 4x - 5$

#16

ID: 28c2253f

Characteristics for Rock Types

Rock type	Weight per volume (lb/ft^3)	Cost per pound
Basalt	180	\$0.18
Granite	165	\$0.09
Limestone	120	\$0.03
Sandstone	135	\$0.22

A city is planning to build a rock retaining wall, a monument, and a garden in a park. The table above shows four rock types that will be considered for use in the project. Also shown for each rock type is its weight per volume, in pounds per cubic foot (lb/ft^3), and the cost per pound, in dollars. Only basalt, granite, and limestone will be used in the garden. The rocks in the garden will have a total weight of 1,000 pounds. If 330 pounds of granite is used, which of the following equations could show the relationship between the amounts, x and y, in ft^3, for each of the other rock types used?

A) $165x + 180y = 670$

B) $165x + 120y = 1000$

C) $120x + 180y = 670$

D) $120x + 180y = 1000$

#17

ID: ca452900

What is the slope of the graph of $y = \frac{5x}{13} - 23$ in the *xy*-plane?

#18

ID: 2e1a7f66

Figure A and figure B are both regular polygons. The sum of the perimeter of figure A and the perimeter of figure B is 63 inches. The equation $3x + 6y = 63$ represents this situation, where x is the number of sides of figure A and y is the number of sides of figure B. Which statement is the best interpretation of 6 in this context?

A) Each side of figure B has a length of 6 inches.

B) The number of sides of figure B is 6.

C) Each side of figure A has a length of 6 inches.

D) The number of sides of figure A is 6.

#19

ID: 637022d2

$$2.5b + 5r = 80$$

The given equation describes the relationship between the number of birds, b, and the number of reptiles, r, that can be cared for at a pet care business on a given day. If the business cares for 16 reptiles on a given day, how many birds can it care for on this day?

A) 0

B) 5

C) 40

D) 80

#20

ID: 6f6dfe3e

x	y
-6	$n + 184$
-3	$n + 92$
0	n

The table shows three values of x and their corresponding values of y, where n is a constant, for the linear relationship between x and y. What is the slope of the line that represents this relationship in the *xy*-plane?

A) $-\frac{92}{3}$

B) $-\frac{3}{92}$

C) $\frac{n+92}{-3}$

D) $\frac{2n-92}{3}$

#21

ID: 038d87d7

A neighborhood consists of a 2-hectare park and a 35-hectare residential area. The total number of trees in the neighborhood is $3{,}934$. The equation $2x + 35y = 3{,}934$ represents this situation. Which of the following is the best interpretation of *x* in this context?

A) The average number of trees per hectare in the park

B) The average number of trees per hectare in the residential area

C) The total number of trees in the park

D) The total number of trees in the residential area

#22

ID: 400798d6

$$2x + y = 37$$

In triangle QRS, sides QR and RS each have a length of x centimeters and side SQ has a length of y centimeters. The given equation represents this situation. Which of the following is the best interpretation of 37 in this context?

A) The difference, in centimeters, between the lengths of sides QR and SQ

B) The difference, in centimeters, between the lengths of sides QR and RS

C) The sum of the lengths, in centimeters, of the three sides of the triangle

D) The length, in centimeters, of one of the two sides of equal length

#23

ID: 9ed4c1a2

What is the slope of the graph of $y = \frac{1}{4}(27x + 15) + 7x$ in the *xy*-plane?

#24

ID: fb43b85f

A line passes through the points $(4, 6)$ and $(15, 24)$ in the *xy*-plane. What is the slope of the line?

#25 ID: a04190b7

A store sells two different-sized containers of blueberries. The store's sales of these blueberries totaled 896.86 dollars last month. The equation $4.51x + 6.07y = 896.86$ represents this situation, where x is the number of smaller containers sold and y is the number of larger containers sold. According to the equation, what is the price, in dollars, of each smaller container?