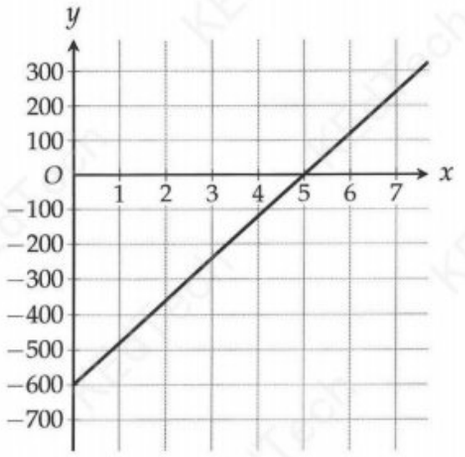
EXERCISE 2: Answers for this exercise start on page 339.

1



The graph models the daily profit y, in dollars, of a bakery after x cakes are sold. Which of the following is the best interpretation of the slope of the graph in this context?

A) The price of each cake

B) The profit generated from each cake sold

C) The daily profit generated from all the cakes that were sold

D) The number of cakes that need to be sold to make a daily profit of 100 dollars

2

Potassium sorbate is mixed into yogurt to increase its shelf life. The function $f(x) = 4 + 3x$ models the shelf life, in days, of 120 ounces of yogurt with x grams of potassium sorbate mixed in. Which of the following is the best interpretation of $f(4) = 16$ in this context?

A) The shelf life of 120 ounces of yogurt with 4 grams of potassium sorbate mixed in is about 16 days.

B) The shelf life of 120 ounces of yogurt with 16 grams of potassium sorbate mixed in is about 4 days.

C) Mixing in 4 grams of potassium sorbate increases the shelf life of 120 ounces of yogurt by about 16 days.

D) Mixing in 16 grams of potassium sorbate increases the shelf life of 120 ounces of yogurt by about 4 days.

3

A tank initially contained 204 gallons of water. After a hole was punched in the tank, the amount of water in the tank decreased at a constant rate each minute until 36 gallons of water remained in the tank. The equation $204 - 4.2x = 36$ represents this situation, where x is the number of minutes after the hole was punched. Which is the best interpretation of the number 4.2 in this context?

A) The percentage decrease in the amount of water in the tank

B) The rate at which water left the tank, in gallons per minute

C) The number of minutes it took for every 1-gallon decrease in the amount of water in the tank

D) The total decrease, in gallons, in the amount of water in the tank x minutes after the hole was punched

4

A seafood vendor earned \$725 for selling a pounds of fish and b pounds of shrimp. The equation $12a + 18b = 725$ represents this situation. What is the best interpretation of $18b$ in this context?

A) The total number of shrimp the vendor sold

B) The total weight, in pounds, of all the fish and shrimp the vendor sold

C) The total amount, in dollars, the vendor earned for b pounds of shrimp sold

D) The total amount, in dollars, the vendor earned for each pound of shrimp sold

5

A total of 200 dollars was spent to purchase notebooks and binders. The equation $2.50x + 3.50y = 200$ represents this situation, where x is the number of notebooks purchased and y is the number of binders purchased. What is the best interpretation of $(x, y) = (24, 40)$ in this context?

A) If 24 notebooks were purchased, then 40 binders were purchased.

B) If 24 notebooks were purchased, then 40 dollars was spent to purchase them.

C) If 40 notebooks were purchased, then 24 binders were purchased.

D) If 40 notebooks were purchased, then 24 dollars was spent to purchase them.

6

A website provides video tutorials on computer programming to its subscribers. The function $s(x) = 500 + 200x$ gives the number of subscribers when there were x videos available on the site. What is the best interpretation of 500 in this context?

A) The site gained 500 subscribers for every additional video it made available.

B) The site initially had 500 videos available.

C) The site had 500 subscribers when there were no videos available.

D) The site gained 500 subscribers for every 200 additional videos it made available.

7

An office supply store sells desks at a discount to customers who purchase at least 5 desks. For a purchase of x desks, the price per desk y, in dollars, is given by the equation $y = 500 - 5x$, where $5 \leq x \leq 30$. Which statement is the best interpretation of $(x, y) = (6, 470)$ in this context?

A) A customer purchasing 6 desks will pay a total of 470 dollars.

B) A customer purchasing 6 desks will receive a discount of 470 dollars.

C) A customer purchasing 6 desks will pay 470 dollars for each desk.

D) A customer purchasing 470 desks will receive a discount of 6 dollars on each desk.

8

A total of 400 patients were treated at a health clinic run by doctors and nurse practitioners. Each patient was treated by either a doctor or a nurse practitioner. Of the patients treated, 127 were treated by doctors. The equation $21n + 127 = 400$ represents this situation, where n is the number of patients treated by each nurse practitioner at the clinic. Which of the following is the best interpretation of $21n$ in this context?

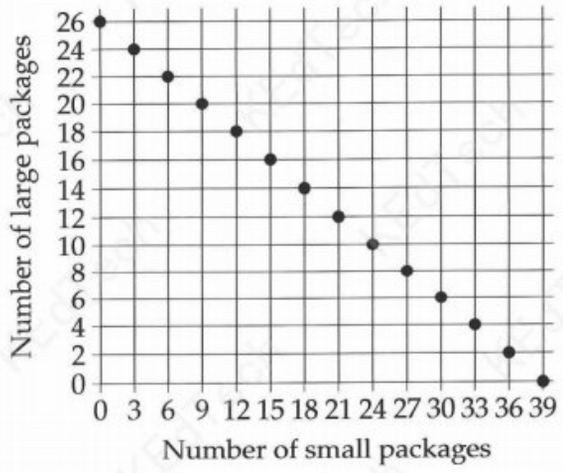
A) The number of nurse practitioners at the clinic

B) The number of patients treated by nurse practitioners at the clinic

C) The number of doctors at the clinic

D) The difference between the number of patients treated by nurse practitioners at the clinic and the number of patients treated by doctors at the clinic

9



Olivia sells figurines and ships them in small and large packages. It takes her 10 minutes to prepare each small package and 15 minutes to prepare each large package. The graph represents the possible combinations of the number of small packages and the number of large packages Olivia can prepare in exactly k minutes. What is the value of k ?

A) 270
B) 330
C) 390
D) 450

10

A walking trail consists of a level path that is 7 miles long and a sloped path that is 4 miles long. It took Oscar a total of 5 hours to walk the entire trail. The equation $7x + 4y = 5$ represents this situation. Which of the following is the best interpretation of y in this context?

A) The total number of hours it took Oscar to walk the sloped path
B) Oscar's average speed, in miles per hour, while walking the sloped path
C) The average number of hours it took Oscar to walk one mile of the sloped path
D) Oscar's average speed, in miles per hour, while walking the level path

11

A party store sells premade banners and custom banners. Yesterday, the store sold a total of 80 banners, earning x dollars in revenue from premade banners and y dollars in revenue from custom banners. The equation $\frac{x}{14} + \frac{y}{25} = 80$ represents this situation. Which of the following is the best interpretation of 14 in this context?

A) The store sold 14 premade banners yesterday.
B) The store earns 14 dollars in revenue for each premade banner sold.
C) The store sold 14 custom banners yesterday.
D) The store earns 14 dollars in revenue for each custom banner sold.

12

$$h(t) = 100 - 4t$$

The given function h models the number of hours until a gallon of milk held at a temperature of t, in degrees Celsius, goes sour. Which of the following is the best interpretation of the number 4 in this context?

A) An increase of $1^\circ C$ will make a gallon of milk go sour 4 hours faster.
B) An increase of $1^\circ C$ will make 4 gallons of milk go sour 1 hour faster.
C) An increase of $4^\circ C$ will make a gallon of milk go sour 1 hour faster.
D) An increase of $4^\circ C$ will make a gallon of milk go sour 4 hours faster.

13

$$h(t) = 3.5\left(\frac{t}{50} + 2\right)$$

The given function h models the height of a tree, in inches, t days after it is planted. According to the model, about how many inches does it grow each day?

A) 0.02
B) 0.07
C) 1.75
D) 3.5

14

An antique lamp was sold at an auction. The price p of the lamp, in dollars, during the auction can be modeled by the equation $p = 900 - 10t$, where t is the number of seconds left in the auction. What is the best interpretation of 900 in this context?

A) The starting auction price of the lamp
B) The final auction price of the lamp
C) The increase in the price of the lamp per second
D) The time it took to auction off the lamp, in seconds

15

A teacher printed sticker sheets with 7 stickers on each sheet. At a school party, she gave out 2 stickers to each student who attended. The relationship between the number of students who attended the party, x, and the number of sticker sheets that the teacher printed, y, is represented by the equation $7y - 32 = 2x$. What is the best interpretation of 32 in this context?

A) The teacher gave out a total of 32 stickers at the party.
B) The teacher had 32 sticker sheets remaining after the party.
C) The teacher printed 32 more stickers than she gave out at the party.
D) The teacher printed a total of 32 sticker sheets.

16

$$y = 1.30x - 1.50$$

The given equation is used by a bank to convert x U.S. dollars into y euros. The bank performs the conversion using an exchange rate and charges a fee for the conversion. Which of the following is the best interpretation of 1.50 in this context?

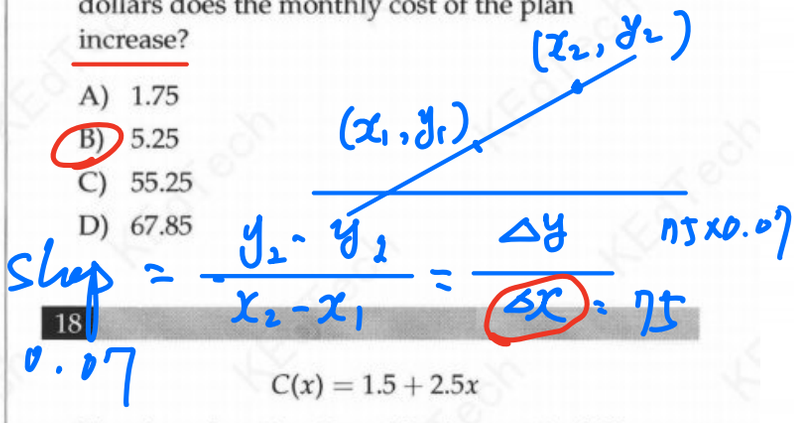
A) The bank charges 1.50 euros to do the currency exchange.
B) The bank charges 1.50 U.S. dollars to do the currency exchange.
C) One U.S. dollar is worth 1.50 euros.
D) One euro is worth 1.50 U.S. dollars.

17

$$C(x) = 0.07(x - 180) + 62.6$$

The function C gives the monthly cost, in dollars, of using an international phone plan for x minutes each month. If the phone plan is used for 75 more minutes each month, by how many dollars does the monthly cost of the plan increase?

A) 1.75
B) 5.25
C) 55.25
D) 67.85



18

$$C(x) = 1.5 + 2.5x$$

The given function C models the cost, in dollars, of mailing a shipment weighing x pounds. According to the model, an increase of 10 dollars in the mailing cost corresponds to an increase of how many pounds in the weight of the shipment?

A) 2
B) 2.5
C) 4
D) 5