

Rate 11 cars/min

While riding in a car, Rachel saw 11 red cars pass by in one minute. At this rate, how many red cars will she see in 4 hours?

☐ A. 2,520

☐ B. 2,760

☐ C. 2,580

☒ D. 2,640

$$4(60) = 240 \text{ minutes}$$

$$11(240) = 2640 \text{ cars}$$

Water is flowing into a 50-gallon bathtub at a rate of 1.9 gallons per minute (gpm). To the nearest minute, how long will it take to completely fill the bathtub?

☐ A. 32 minutes

☒ B. 26 minutes

☐ C. 48 minutes

☐ D. 95 minutes

$$\frac{50}{1.9}$$

= 26

Which statement describes the rate of change of the following function?

$$f(x) = 4x - 8$$

+ → increasing

- ☒ ~~A.~~ The function has a ~~varying~~ rate of change when  $x > 4$ .
- ☒ ~~B.~~ The function has a constant rate of change, decreasing for all  $x$  at a rate of 8.
- ☒ C. The function has a constant rate of change, increasing for all  $x$  at a rate of 4.
- ☒ ~~D.~~ The function has a ~~varying~~ rate of change when  $x < 8$ .

Megan is going on a long distance road trip. She drives for 12 miles before being able to travel at a constant speed using cruise control. The equation used to find her total distance traveled is shown below.

$$y = 64x + 12$$

If  $y$  is the total number of miles driven, and  $x$  is the number of hours driven after reaching 12 miles, which statement best describes the rate of change in the distance traveled?

- ☒ **A.** For every hour, she will drive 64 miles.
- ☐ **B.** For every 12 hours, she will drive 76 miles.
- ☐ **C.** For every hour, she will drive 76 miles.
- ☐ **D.** For every two hours, she will drive 64 miles.



What is the equation of the line that passes through the points (4,8) and (7,2)?

$x_1, y_1$        $x_2, y_2$   
(4,8) and (7,2)

☒ A.  $y - 8 = -2(x - 4)$

☐ B.  $y - 2 = -\frac{1}{2}(x - 7)$

☐ C.  $y + 2 = -2(x + 7)$

☐ D.  $y + 8 = -\frac{1}{2}(x + 4)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{2 - 8}{7 - 4} = \frac{-6}{3} = -2 = m$$

$$y - y_1 = m(x - x_1)$$

$$y - 2 = -2(x - 7)$$

Or

$$y - 8 = -2(x - 4)$$

Mrs. Stewart is making banana pudding for a family reunion. Her recipe uses 1.5 bananas per dish of pudding. If one dish of pudding can feed 22 people, about how many bananas will she need to feed the 286 people that will be at the reunion?

☒ A. 20

☐ B. 39

☐ C. 22

☐ D. 13

$$\frac{286}{22} = 13 \text{ dishes}$$

$$13(1.5) = 19.5 \rightarrow \begin{matrix} \text{Round} \\ 20 \end{matrix}$$

Kaylee is unpacking boxes of magazines at a bookstore. To track her progress, she records the number of boxes she has left to unpack ( $y$ ) and the number of hours she has spent unpacking ( $x$ ).

Hours Unpacking ( $x$ )	Boxes Left ( $y$ )
0	63
1	59
2	55
3	51
4	47

$> -4$   
 $> -4$

$$m = -4$$

If Kaylee started with 63 boxes and continues to unpack the boxes at the same rate, how many more hours will it take her to reach her goal of 31 boxes left to unpack?

☐ A. 3

☒ B. 4

☐ C. 5

☐ D. 6

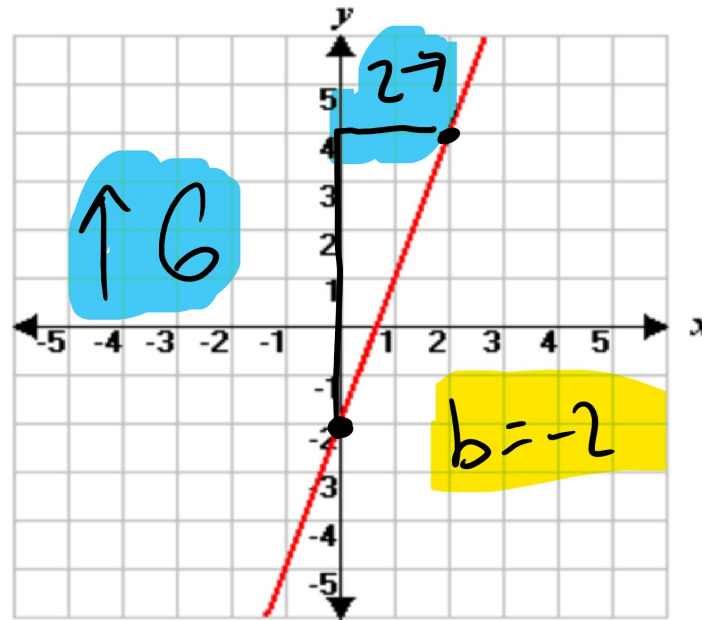
$$y = -4x + 63$$

$$\begin{array}{r} 31 = -4x + 63 \\ -63 \\ \hline -32 = -4x \\ \frac{-32}{-4} = \frac{-4x}{-4} \\ 8 = x \end{array}$$

$$\underline{x = 8 \text{ total hours}}$$

$$\begin{array}{r} 8 - 4 \\ = 4 \text{ hours left} \end{array}$$

Which of the following equations matches the graph below?



$$M = \frac{6}{2} = 3$$

☐ A.  $y = -3x - 2$

☒ B.  $y = 3x - 2$

☐ C.  $y = -\frac{1}{3}x - 2$

☐ D.  $y = \frac{1}{3}x + 2$

The table below shows values of  $y$  as a function of  $x$ .

$x$	$y$
2	8
6	15
10	22
22	43
30	57

$$m = \frac{15-8}{6-2} = \frac{7}{4} = 1.75$$

Which linear equation describes the relationship between  $x$  and  $y$ ?

☒ A.  $y = 0.57x + 6.86$

☒ B.  $y = 0.57x + 8$

☐ C.  $y = 1.75x + 4.5$

☒ D.  $y = 1.75x + 8$

$$y - 8 = 1.75(x - 2)$$

$$y - 8 = 1.75x - 3.5$$
$$\begin{array}{r} +8 \\ \hline \end{array}$$

$$y = 1.75x + 4.5$$

A linear function has a slope of  $\frac{7}{2}$  and crosses the y-axis at -7. What is the equation of the line?

☒ A.  $y = \frac{7}{2}x - 7$

☐ B.  $y = -7x - \frac{7}{2}$

☐ C.  $y = \frac{7}{2}x - \frac{49}{2}$

☐ D.  $y = \frac{7}{2}x + 7$

The equation of a line in the point-slope form is show below.

$$y - 9 = \frac{1}{4}(x - 5)$$

↑ slope

What is the slope of this line?

- ☐ A. 5
- ☒ B.  $\frac{1}{4}$
- ☐ C.  $\frac{1}{9}$
- ☐ D. 4



A line passes through the point  $(2, -3)$  and has a slope of 4. Find the equation of the line.

☒ A.  $y = 4x - 11$

☐ B.  $y = 4x - 5$

☒ C.  $y = -4x - 11$

☒ D.  $y = -4x - 5$

$$y - (-3) = 4(x - 2)$$

$$\begin{array}{r} y + 3 = 4x - 8 \\ \underline{-3} \qquad \qquad \underline{-3} \end{array}$$

$$y = 4x - 11$$

$$x=0$$

Identify the **y-intercept** of the line below.

$$4x + 8y = 320$$

☒ **A.** (40, 0)

☐ **B.** (0, 40)

☒ **C.** (80, 0)

☒ **D.** (0, 80)

$$\frac{8y}{8} = \frac{320}{8}$$

$$y = 40$$

Identify the slope of the line below.

☒ **A.** 4

☒ **B.** -4

☒ **C.** 7

☒ **D.** -7

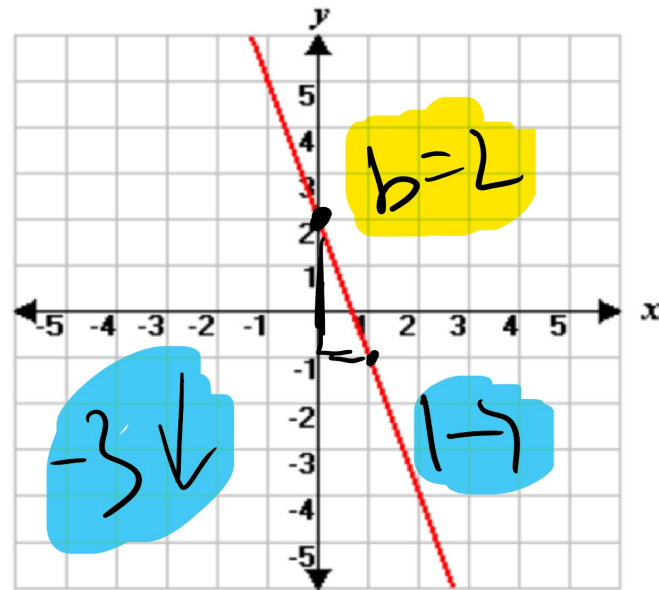
$$(7x) - y = -4$$

$$\frac{-1y}{-1} = \frac{-7x-4}{-1} = \frac{-7x-4}{-1}$$

$$y = 7x + 4$$

↑ slope

Which of the following equations matches the graph below?



$$M = \frac{-3}{1} = -3$$

☒ A.  $y = -\frac{1}{3}x + 2$

☒ B.  $y = \frac{1}{3}x + 2$

☒ C.  $y = 3x - 2$

☐ D.  $y = -3x + 2$

A line passes through  $(x_1, y_1) = (7, 1)$  and  $(x_2, y_2) = (10, -17)$ . Write the equation of the line in standard form.

☒ A.  $6x + y = 43$

☐ B.  $6x - y = 41$

☐ C.  $6x + y = 41$

☐ D.  $6x - y = 1$

$$\frac{-17 - 1}{10 - 7} = \frac{-18}{3} = -6$$

$$y - 1 = -6(x - 7)$$

$$y - 1 = -6x + 42$$

$$6x + y = 42 + 1$$

$$6x + y = 43$$

Lisa is making baby blankets to donate to a local hospital. The table below shows the relationship between the number of blankets made and the number of hours spent making the blankets.

**Baby Blankets**

Number of Blankets	Hours Spent Making Blankets
1	$1\frac{3}{4}$
2	$3\frac{1}{2}$
3	$5\frac{1}{4}$

$> 1\frac{3}{4}$  slope  
 $> 1\frac{3}{4}$

Based on the relationship shown in the table, how many more hours does Lisa spend making 12 blankets than she does making 3 blankets?

- ☐ A.  $10\frac{3}{4}$
- ☒ B.  $15\frac{3}{4}$
- ☐ C. 21
- ☐ D.  $26\frac{1}{4}$

$$\begin{array}{r}
 \text{12 Blankets} \\
 \hline
 12(1\frac{3}{4}) \\
 21 - 5\frac{1}{4} \\
 \hline
 15\frac{3}{4}
 \end{array}$$

Adelaide has a credit card with a company that charges \$2.50 for every day a payment is late. If she paid \$667.68 for a bill that is 5 days late, how much was the bill without the late fee?

☒ A. \$655.18

☐ B. \$665.18

☐ C. \$652.68

☐ D. \$660.18

Late fee

cost

Total

$$2.5(5) + X = 667.68$$

$$12.5 + X = 667.68$$

$$\underline{-12.5}$$

$$\underline{-12.5}$$

$$X = 655.18$$



Which statement describes the rate of change of the following function?

$$f(x) = -4x - 7$$

→ - Means decrease

- ☒ ~~A.~~ The function has a constant rate of change, decreasing for all  $x$  at a rate of 7.
- ☒ ~~B.~~ The function has a varying rate of change when  $x < 4$ .
- ☒ ~~C.~~ The function has a varying rate of change when  $x < 7$ .
- ☐ D. The function has a constant rate of change, decreasing for all  $x$  at a rate of 4.

At the county fair, one of the more popular booths is the Crawfish Race booth. In the last race, the champion crawfish traveled 5 mm after the first second and 57 mm after twenty-seven seconds.

Approximately what was the average rate of change for the distance covered during that time?

- ☐ A. 2.00 mm per second
- ☒ B. 0.50 mm per second
- ☐ C. 26 mm per second
- ☐ D. 52 mm per second

(5, 1)

(57, 27)

$$\frac{27-1}{57-5} = \frac{26}{52} = 0.5$$

A frozen yogurt stand charges per ounce of frozen yogurt purchased. There is an extra charge for a waffle bowl. The total cost ( $c$ ), in dollars, for  $f$  ounces of frozen yogurt in a waffle bowl, is described by the function  $c = 0.45f + 1$ .

Which statement is true?

- ☒ **A.** Each ounce of frozen yogurt costs \$0.45 and a waffle bowl is \$1 extra.
- ☐ **B.** Each ounce of frozen yogurt costs \$1 and a waffle bowl is \$0.45 extra.
- ☐ **C.** The cost of 0.45 ounce of frozen yogurt in a waffle bowl is \$1.
- ☐ **D.** The cost of 0.45 ounce of frozen yogurt in a waffle bowl is \$1.45.

The amount of money an employee earns monthly before taxes, in dollars, after selling  $n$  products is  $\$1,500 + \$300n$ .

Which statement is correct?

- ☒ **A.** For every product sold, the employee's earnings increase by \$300.
- ☐ ~~**B.**~~ For every product sold, the employee's earnings increase by \$1,200.
- ☐ ~~**C.**~~ For every product sold, the employee's earnings increase by \$1,500.
- ☐ ~~**D.**~~ For every product sold, the employee's earnings increase by \$1,800.

It takes Pervis 25 minutes to ride his bicycle 1.9 miles to school each day. How far can Pervis ride in one hour if he continues to travel at this speed?

☐ A. 5.7 miles

☐ B. 7.60 miles

☒ C. 4.56 miles

☐ D. 0.4 miles

$$\frac{1.9}{25} = 0.076 \frac{\text{miles}}{\text{minutes}}$$

$$\underline{1 \text{ hour} = 60 \text{ minutes}}$$

$$0.076(60 \text{ minutes}) = 4.56 \text{ miles}$$