Name_____ **Test 4: Unit 6 Review**

1. While riding in a car, Rachel saw 13 red cars pass by in one minute. At this rate, how many red cars will she see in 2 hours?

A. 1,500 C. 1,560 B. 1,440 D. 1,680

Minutes in 2 hours

60·2 = 120 min.

120(13) = 1560 cars

2. Water is flowing into a 50-gallon bathtub at a rate of 2.5 gallons per minute (gpm). To the nearest minute, how long will it take to completely fill the bathtub?

A. 48 minutes C. 20 minutes B. 24 minutes D. 125 minutes

$\frac{50}{2.5}$ = 20 minutes

3. Which statement describes the rate of change of the following function? f(x) = -4x + 8

A. The function has a constant rate of change, increasing for all *x* at a rate of 8.

B. The function has a varying rate of change when $x > 8$.

C. The function has a varying rate of change when $x < 4$.

D. The function has a constant rate of change, decreasing for all *x* at a rate of 4.

Y-4

4. Megan is going on a long distance road trip. She drives for 17 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.

$$y = 56x + 17$$

Rate

If *y* is the total number of miles driven, and *x* is the number of hours driven after reaching 17 miles, what does the number 56 represent in the equation?

A. the distance traveled on the trip

B. the constant rate of speed while on cruise control

C. the number of hours driven on the trip

D. the distance driven before being able to travel at a constant speed

5. What is the equation of the line that passes through the points (4,9) and (8,2)?

$x_1 y_1$ $x_2 y_2$

A. $y + 2 = -\frac{7}{4}(x + 8)$ C. $y - 9 = -\frac{7}{4}(x - 4)$

B. $y - 2 = -\frac{4}{7}(x - 8)$ D. $y + 9 = -\frac{4}{7}(x + 4)$

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

$= \frac{2-9}{8-4}$

$= \frac{-7}{4}$

$y - y_1 = m(x - x_1) \rightarrow y - 2 = \frac{-7}{4}(x - 8)$

6. Mrs. Stewart is making banana pudding for a family reunion. Her recipe uses 2 bananas per dish of pudding. If one dish of pudding can feed 19 people, about how many bananas will she need to feed the 228 people that will be at the reunion?

A. 26 C. 12

B. 24 D. 48

How many Dishes? $\frac{228}{19} = 12$

$2(12) = 24$ Bananas

7. Jack is unpacking boxes of magazines at a bookstore. To track his progress, he records the number of boxes he has left to unpack (y) and the number of hours he spent unpacking (x).

Hours Unpacking (x)	Boxes left (y)
0	50
1	46
2	42
3	38
4	34

$m = -4$

If Jack started with 50 Boxes and continues to unpack at the same rate, how many more hours will it take him to reach his goal of 14 boxes left to unpack?

B. 5 C. 6 D. 7

$9 - 4 = 5$

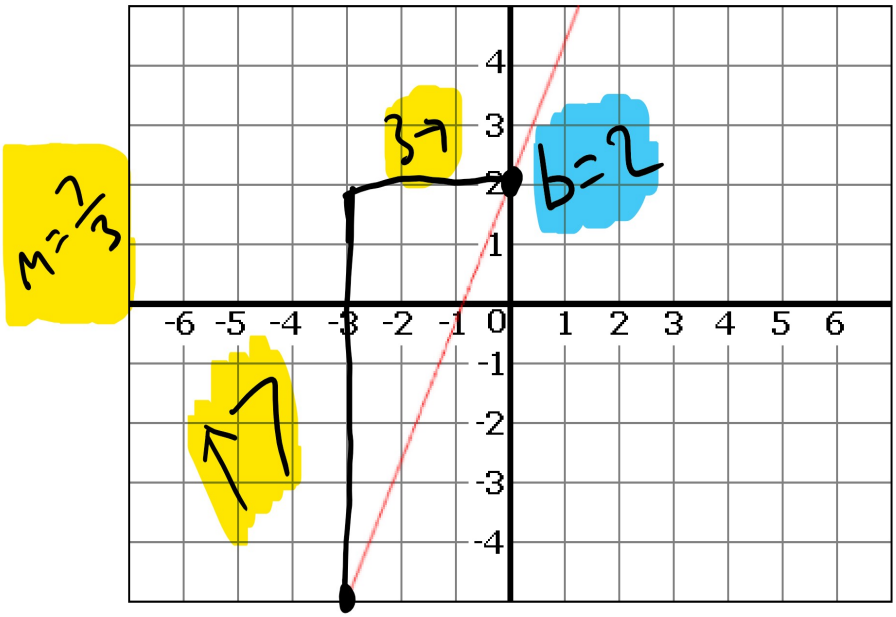
$50 - 4x = 14$

$-50 \quad -50$

$\frac{-4x}{-4} = \frac{-36}{-4}$

$x = 9$

8. Which of the following equations describes the function graphed below?



$m = \frac{3}{7}$ $b = 2$

$y = \frac{7}{3}x + 2$

A. $y = {}^{3}/_{7}x + 2$

B. $y = {}^{7}/_{3}x + 2$

C. $y = 2x - {}^{7}/_{3}$

D. $y = {}^{-7}/_{3}x + 2$

9. Which of the following equations describes the table below?

x	y
-3	-5
0	2
3	9
6	16

$m = \frac{16 - 9}{6 - 3} = \frac{7}{3}$

A. $y = {}^{3}/_{7}x + 2$

B. $y = {}^{7}/_{3}x + 2$

C. $y = 2x - {}^{7}/_{3}$

D. $y = {}^{-7}/_{3}x + 2$

$y - 2 = \frac{7}{3}(x - 0)$

$y - 2 = \frac{7}{3}x + 2$

$y = \frac{7}{3}x + 2$

m=3 b=11 y=3x+11

10. A linear function has a slope of 3 and crosses the y-axis at 11. What is the equation of the line?

A. $y = 3x - 33$
B. $y = 3x + 11$
C. $y = 3x - 11$
D. $y = 11x + 3$

11. The equation of a line in the point-slope form is show below. What is the slope of this line?

$$y - 9 = 3(x - 8)$$

A. $\frac{1}{3}$
B. $\frac{1}{9}$
C. 8
D. 3

12. A linear function has a slope of 3 and passes through the point (0,11). What is the equation of the line?

A. $y = 11x + 3$
B. $y = \frac{1}{3}x - 11$
C. $y = 3x + 11$
D. $y = 3x - 11$

$y - 11 = 3(x - 0)$

$y - 11 = 3x + 11$

$+11 \quad +11$

$y = 3x + 11$

13. $2x - 4y = 12$

What is the y-intercept of the equation above?

A. $(0, 1/2)$
B. $(2, 0)$
C. $(0, -3)$
D. $(-3, 0)$

y int (x=0)

$-4y = 12$

$\frac{-4y}{-4} = \frac{12}{-4}$

$y = -3$

14. Identify the slope of the line below.

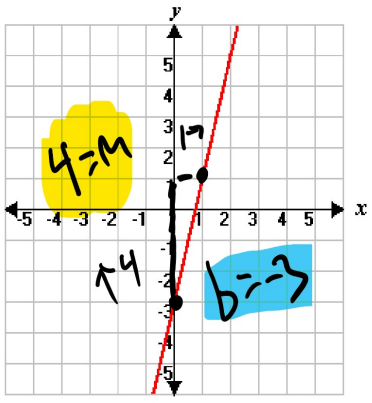
$3x + 5y = 10$

A. $-\frac{3}{5}$
B. $\frac{3}{5}$
C. 2
D. -2

$\frac{5y}{5} = \frac{-3x + 10}{5}$

$y = \frac{-3}{5}x + 2$

15. Which of the following equations matches the graph below?



A. $y = \frac{1}{4}x + 3$
B. $y = 4x - 3$
C. $y = -4x + 3$
D. $y = -\frac{1}{4}x + 3$

16. A line passes through (6,3) and (9,-3).
Write the equation of the line in standard form.

- A. $2x - y = 0$
- B. $2x - y = 9$
- C. $2x + y = 15$
- D. $2x + y = 9$

$x_1, y_1 \quad x_2, y_2$

$m = \frac{-3-3}{9-6} = \frac{-6}{3} = -2$

$y - 3 = -2(x - 6)$

$y - 3 = -2x + 12$

$y + 2x = 12 + 3$

$2x + 1y = 15$

17. Jamie is trying to lose weight. She starts a diet and workout regimen and records her weight (y) every week (x) at her gym. Her initial weight was 184 lbs.

Week (x)	Weight (y)	
1	180	−4
2	176	−4
3	172	−4
4	168	−4

$m = -4$

$y = -4x + 184$

$156 = -4x + 184$

$-184 \quad -184$

$\frac{-28}{-4} = \frac{-4x}{-4}$

$x = 7$

If Jamie continues to lose weight at the same rate, how many more weeks will it take her to reach her goal of 156 lbs?

- A. 4 weeks
- B. 3 weeks
- C. 2 weeks
- D. 5 weeks

$7 - 4 = 3$

(4 weeks already happened)

18. The amount of Jerry's pay every week before taxes, J, is given below as a function of the number of overtime hours that he works (the number of hours over 40), h.

Round Up

$J = \$493.60 + \$18.51h$

Assuming that Jerry is only paid for each whole hour that he works, how many total hours would Jerry have to work during a week to make at least $650.00?

$40 + 9 = 49$

(40 = Workweek, 9 = Overtime)

- A. 48
- B. 8
- C. 49
- D. 59

$650 = 493.60 + 18.51h$

$-493.60 \quad -493.60$

$\frac{156.4}{18.51} = \frac{18.51h}{18.51}$

$h = 8.4 \rightarrow 9$

19. The amount of fuel, in gallons, in a vehicle's fuel tank after driving m miles is $20 - 0.04m$.
Which statement is correct?

- A. For every mile the car is driven, the amount of fuel decreases by 20 gallons.
- B. For every mile the car is driven, the amount of fuel decreases by 0.04 gallons.
- C. For every mile the car is driven, the amount of fuel increases by 20 gallons.
- D. For every mile the car is driven, the amount of fuel increases by 0.04 gallons.

20. At the county fair, one of the more popular booths is the Crawfish Race booth. In the last race, the champion crawfish traveled 9 mm after the first second and 52 mm after twenty-nine seconds.

(1, 9) (29, 52)

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

- A. 1.54 mm per second
- B. 43 mm per second
- C. 0.65 mm per second
- D. 28 mm per second

$\frac{52-9}{29-1} = \frac{43}{28} = 1.54$

21. 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 $c = 0.25f + 2$.

Which statement is true?

A. The cost of 0.25 ounce of frozen yogurt in a waffle bowl is $2.

B. The cost 0.25 ounce of frozen yogurt in a waffle bowl is $2.25.

C. Each ounce of frozen yogurt costs $0.25 and a waffle bowl is $2 extra.

D. Each ounce of frozen yogurt costs $2 and a waffle bowl is $0.25 extra.

22. Mr. Baker leaves the check-in counter at the airport and walks to a moving sidewalk, which takes him to his gate. Mr. Baker's distance (d), in meters, from the check-in counter while he has been standing on the moving sidewalk for s seconds, is described by the function d = 3s + 30.

3 m/sec

Which statement is true?

A. Mr. Baker is 3 meters from the check-in counter after 33 seconds.

B. Mr. Baker is 30 meters from the check-in counter 34 seconds.

C. Mr. Baker moves 3 meters per second while standing on the moving sidewalk, and he walked 30 meters to get to the moving sidewalk.

D. Mr. Baker moves 30 meters per second while standing on the moving sidewalk, and he walked 3 meters to get to the moving sidewalk.

23. Sebastian bought *x* gallons of gas at a price of $2.57 per gallon at his local gas station. When he paid for the gas, Sebastian also paid $4.50 for granola bars and a box of tissues.
If Sebastian filled 15 gallons of gas, how much did he spend in all at the gas station?

A. $7.93

B. $22.07

C. $43.05

D. $106.05

$2.57x + 4.50 = \text{Cost}$

$x = 15$

$2.57(15) + 4.50 = 43.05$