

Name: Key 2018-2019

Period: _____

Date: _____

ID: A

Algebra Prep 4.4-4.7 (Alg 1 Red text) study guide

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

1. Find the slope of the line passing through the points $A(-1, 1)$ and $B(4, -5)$.

$$m = \frac{-5 - 1}{4 - (-1)} = \frac{-6}{5}$$

$$x_1, y_1 \quad x_2, y_2$$

2. Find the slope of the line that contains $(-5, 8)$ and $(-5, -5)$.

$$m = \frac{-5 - 8}{-5 - (-5)} = \frac{-13}{0}$$

undefined

3. At 12:20 P.M., a parachutist is 6200 feet above the ground. At 12:27 P.M., the parachutist is 1100 feet above the ground. Find the average rate of change in feet per minute.

Two points $(12:20, 6200)$ $(12:27, 1100)$
 $x_1, y_1 \quad x_2, y_2$

$$\text{avg. rate of change} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1100 - 6200}{12:27 - 12:20} = \frac{-5100}{7} \approx -728.57$$

The parachutist is falling at approximately 728.57 feet per minute.

4. Find the slope and y-intercept of the line with the equation $-9x + 3y = 54$.

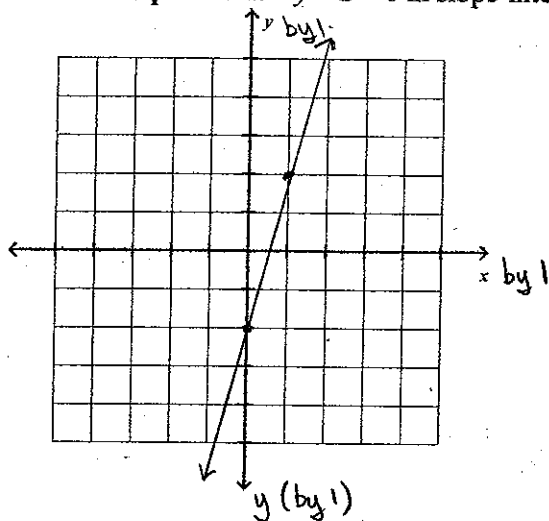
$$\begin{aligned} &+9x \quad +9x \\ \frac{3y}{3} &= \frac{9x + 54}{3} \end{aligned}$$

$$y = 3x + 18$$

$$\text{slope } (m) = 3 = \frac{3}{1}$$

$$\text{y-int: } (0, 18)$$

5. Write the equation $4x - y - 2 = 0$ in slope-intercept form, and sketch the line.



$$4x - y - 2 = 0$$

$$4x - y = 2$$

$$-4x \quad -4x$$

$$\frac{-y}{-1} = \frac{-4x+2}{-1}$$

$$y = 4x - 2$$

6. Determine if the line $-7x + 6y = 3$ is parallel to the line $y = \frac{7}{6}x + 1$.

$$+7x \quad +7x$$

$$\frac{6y}{6} = \frac{7x+3}{6}$$

$$y = \frac{7}{6}x + \frac{1}{2}$$

The line $-7x + 6y = 3$ is parallel to $y = \frac{7}{6}x + 1$ because they have the same slope.

7. The distance traveled (in meters) by the Oregon slug can be modeled by the function $f(t) = 0.9t$, where t is the time in minutes. Find the distance traveled in 27.5 minutes.

$$f(t) = .9t$$

$$t = 27.5$$

$$f(27.5) = .9(27.5)$$

$$f(27.5) = 24.75$$

The Oregon slug can travel 24.75 meters in 27.5 minutes.

What is the value of the function when $x = 5$?

8. $f(x) = x - 5$

$$f(5) = 5 - 5$$

$$f(5) = 0$$

$$(5, 0)$$

Find the value of x so that $f(x) = 13$.

9. $f(x) = x - 10$

$$13 = x - 10$$

$$+10 \quad +10$$

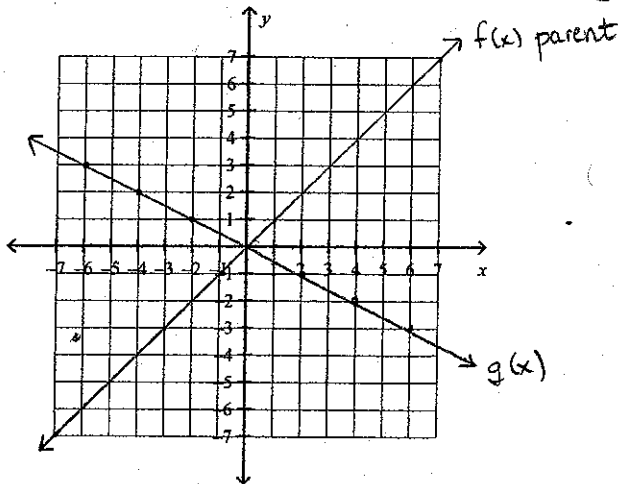
$$23 = x$$

$$f(23) = 13$$

$$(23, 13)$$

10. Graph the lines given below. Be sure to show a table for each graph, one line of work for each and label each graph. Then compare and contrast the lines. Finally, in a sentence, describe what transformation has occurred. Don't forget to label your axes.

$f(x) = x$ (this is the parent function) and $g(x) = -\frac{1}{2}x$.



$$f(x) = x$$

| x | f(x) |
|----|------|
| -1 | -1 |
| 0 | 0 |
| 1 | 1 |

$$f(-1) = -1$$

$$g(x) = -\frac{1}{2}x$$

| x | g(x) |
|----|------|
| -2 | 1 |
| 0 | 0 |
| 2 | -1 |
| 4 | -2 |

$$-2 \quad 1$$

$$0 \quad 0$$

$$2 \quad -1$$

$$4 \quad -2$$

$$g(-2) = -\frac{1}{2}(-2)$$

$$g(-2) = 1$$

$f(x)$ and $g(x)$ have the same y -intercept but different slopes. $f(x)$ is a rising line whereas $g(x)$ is a falling line. $g(x)$ has a steeper slope.

$g(x)$ is a reflection and a vertical stretch of $f(x)$.