

Name: KEY

Hour: \_\_\_\_\_ Date: \_\_\_\_\_

ID: Practice

## Chapter 2 Quiz #2 Practice Quiz

1. Write an equation of a line that has slope
- $-5$
- and
- $y$
- intercept
- $2$
- .

$$y = -5x + 2$$

2. Write the equation of the line, in slope-intercept form, that passes through the point
- $(3, 5)$
- and has slope
- $-2$
- .

$$y = mx + b$$

$$5 = -2(3) + b$$

$$5 = -6 + b$$

$$11 = b$$

$$y = -2x + 11$$

3. Write an equation in slope-intercept form for a line that passes through the point
- $(1, -5)$
- and is parallel to the line
- $y = -4x - 5$
- .

$$\begin{array}{c} \uparrow \\ m = -4 \end{array}$$

$$y = mx + b$$

$$-5 = -4(1) + b$$

$$-5 = -4 + b$$

$$-1 = b$$

$$y = -4x - 1$$

4. Find the slope-intercept equation of the line passing through the points
- $(-5, -3)$
- and
- $(-2, 6)$
- .

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - (-3)}{-2 - (-5)} = \frac{9}{3} = 3$$

$$y = mx + b$$

$$-3 = 3(-5) + b$$

$$-3 = -15 + b$$

$$12 = b$$

$$y = 3x + 12$$

5. The amount a spring will stretch,
- $S$
- , varies directly with the force (or weight),
- $F$
- , attached to the spring. If a spring stretches 7 inches with 50 pounds attached, how far will it stretch with 40 pounds attached?

$$S = aF$$

$$7 = a(50) \rightarrow a = \frac{7}{50}$$

$$S = \frac{7}{50} \cdot 40$$

$$S = 5.6 \text{ in}$$

Alternate Method:

$$\left\{ \begin{array}{l} \frac{7}{50} = \frac{x}{40} \\ x = 5.6 \text{ in.} \end{array} \right.$$

6. The variables
- $x$
- and
- $y$
- vary directly and
- $y = -6$
- when
- $x = \frac{1}{4}$
- . Write an equation that relates the variables.

$$y = ax$$

$$-6 = a\left(\frac{1}{4}\right)$$

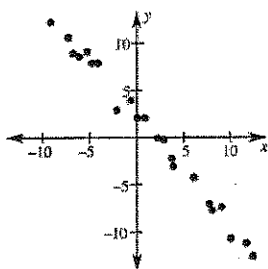
$$-24 = a$$

$$y = -24x$$

7. The number of gears,  $G$ , a machine can make varies directly as the time,  $T$ , it operates. If it can make 3528 gears in 7 hours, how many gears can it make in 9 hours?

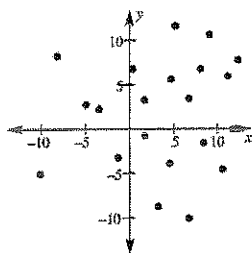
$$\frac{3528}{7} = \frac{x}{9} \quad \Rightarrow \quad 4536 \text{ gears}$$

8. For the scatter plot shown, state whether  $x$  and  $y$  have a *positive correlation*, a *negative correlation*, or *no correlation*.



negative correlation

9. For the scatter plot shown, state whether  $x$  and  $y$  have a *positive correlation*, a *negative correlation*, or *no correlation*.



no correlation

10.

**Household Size** The table shows the average household size  $y$  in the United States from 1930 to 2000. Let  $x$  represent the number of years since 1930.

Year, $x$	0	10	20	30	40	50	60	70
Household size, $y$	1.11	2.67	2.27	2.25	2.14	2.76	2.62	2.62

= 1.84

- a. Using a graphing calculator, find the equation for the best-fitting line for the data.

- b. Use the equation to predict the average household size in 2030.

in 2030,  $x = 100$

$$y = -0.021x + 3.94$$

$$y = -0.021(100) + 3.94$$

11. Write an equation in slope-intercept form for a line that passes through the point  $(1, -5)$  and is perpendicular to the line  $y = -4x - 5$ .

$$m = \frac{1}{4}$$

$$y = mx + b$$

$$-5 = \frac{1}{4}(1) + b$$

$$-5 = \frac{1}{4} + b$$

$$-5\frac{1}{4} = b$$

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