

Name:

Key

Date:

Hour:

Algebra 1
Unit 2A Test Review WS

1. Find the domain and range of each relation.

a. $\{(1, 5), (-1, 3), (2, 7), (8, 10), (-2, 3)\}$

$$D: \{1, -1, 2, 8, -2\}$$

$$R: \{5, 3, 7, 10\}$$

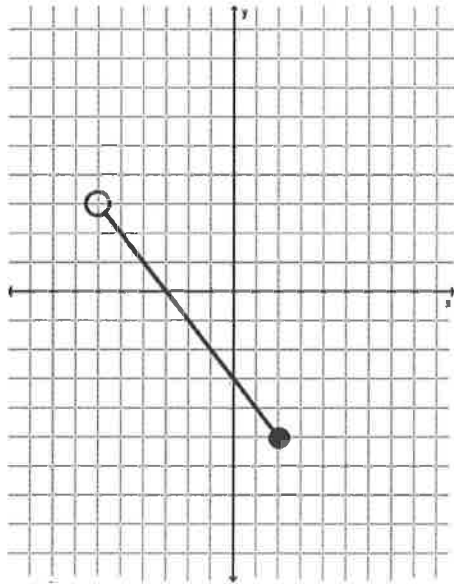
c.

x	-3	-1	0	1	3
y	2	6	10	14	18

$$D: \{-3, -1, 0, 1, 3\}$$

$$R: \{2, 6, 10, 14, 18\}$$

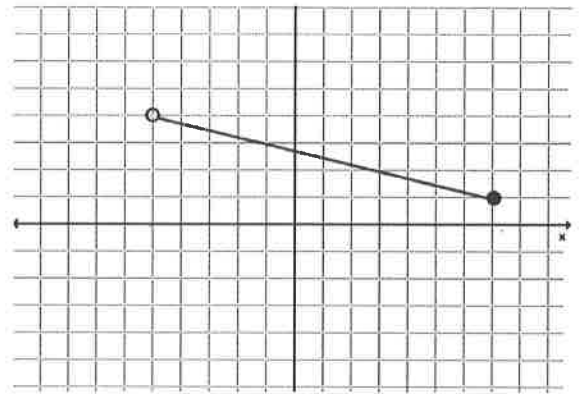
b.



$$D: \{-6 < x \leq 2\}$$

$$R: \{-5 \leq y < 3\}$$

d.



$$D: \{-5 < x \leq 7\}$$

$$R: \{1 \leq y < 4\}$$

2. Using the examples in #1, determine if each represents a linear function. Explain your reasoning.

a. no, no constant rate of change

b. yes, constant rate of change

c. yes, line

d. yes, line

3. If $f(x) = 3x - 5$ and $g(x) = 3 - 5x$, evaluate each of the following.

a. $g(-3)$

$$g(-3) = 3 - 5(-3)$$

$$= 3 + 15$$

$$\boxed{g(-3) = 18}$$

$$(-3, 18)$$

b. $f(4)$

$$f(4) = 3(4) - 5$$

$$= 12 - 5$$

$$\boxed{f(4) = 7}$$

$$(4, 7)$$

c. $g(2) - f(-1)$

$$g(2)$$

$$3 - 5(2)$$

$$3 - 10$$

$$-7$$

$$f(-1)$$

$$3(-1) - 5$$

$$-3 - 5$$

$$-8$$

$$\begin{array}{c} \downarrow \\ + \\ \boxed{1} \end{array}$$

4. Alan pays Comcast \$5 per movie rental plus an \$80 fee.

a. Write a function, in function notation, to represent Alan's total bill.

$$f(x) = 5x + 80$$

b. How much is Alan's bill if he rents 6 movies?

$$f(x) = 5(6) + 80$$

$$= 30 + 80$$

$$= \$110$$

c. If Alan's bill was \$130, how many movies did he rent?

$$130 = 5x + 80$$

$$\begin{array}{r} -80 \\ \hline 50 = 5x \end{array}$$

$$\frac{50}{5} = \frac{5x}{5}$$

$$\boxed{10 \text{ movies}}$$

4. Find the x- and y-intercepts of the following equations (write as on ordered pair).

a. $-x + 2y = 12$

$$-x = 12 \quad 2y = 12$$

$$x = -12 \quad y = 6$$

$$\boxed{(-12, 0)} \quad \boxed{(0, 6)}$$

b. $6y + 3x = -18$

$$6y = -18$$

$$y = -3$$

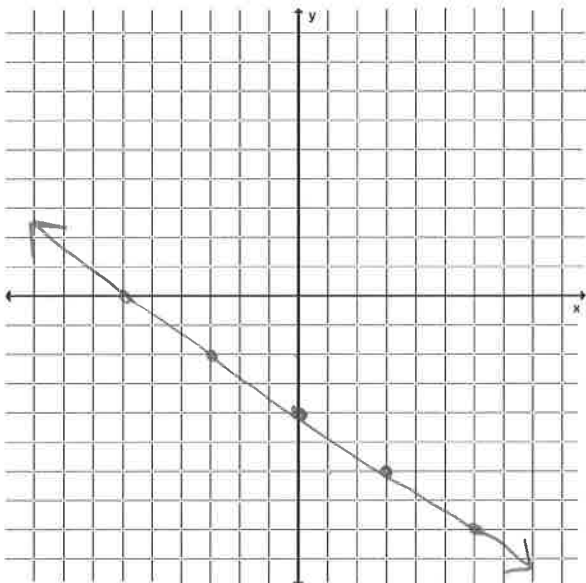
$$3x = -18$$

$$x = -6$$

$$\boxed{(0, -3)} \quad \boxed{(-6, 0)}$$

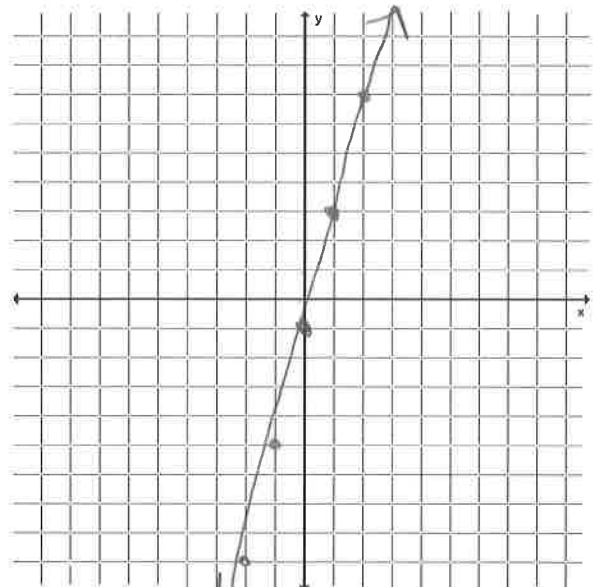
5. Graph each function.

a. $f(x) = -\frac{2}{3}x - 4$



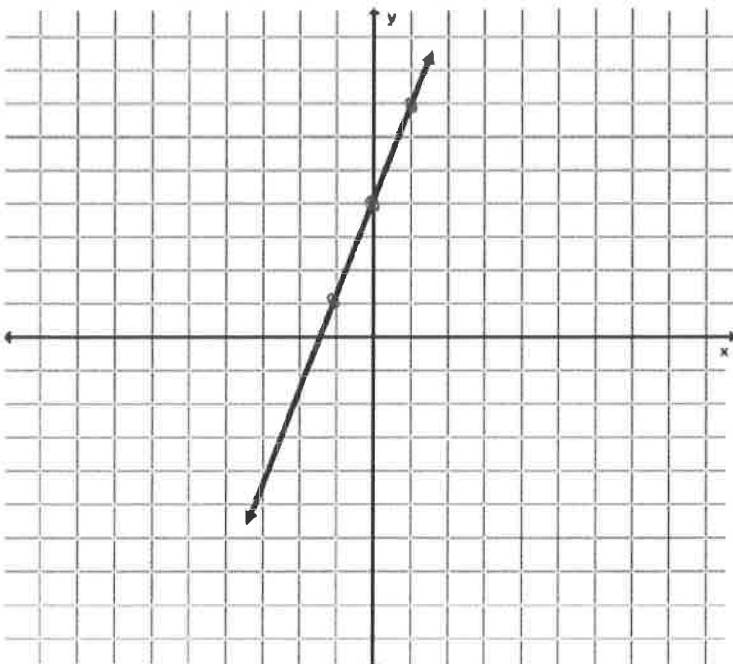
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b. $f(x) = 4x - 1$



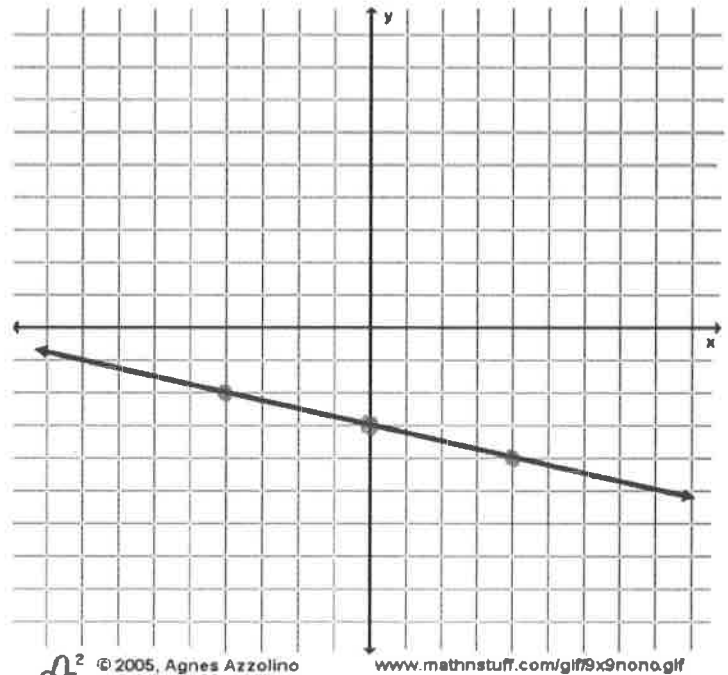
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6. Write the equation of the line, in slope intercept form, for each graph.



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$$y = 3x + 4$$



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$$y = -\frac{1}{4}x - 3$$

7. Write the equation of the line, in slope intercept form, for each situation.

a. Passing thru $(-2, 5)$ and $m = 3$

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

$$5 = -6 + b$$

$$11 = b$$

$$\boxed{y = 3x + 11}$$

b. Passing thru $(6, 4)$ and $m = \frac{2}{3}$

$$4 = \frac{2}{3}(6) + b$$

$$4 = 4 + b$$

$$0 = b$$

$$\boxed{y = \frac{2}{3}x + 0} \quad \text{or}$$

$$\boxed{y = \frac{2}{3}x}$$

c. Passing thru $(1, 2)$ and $(3, -2)$

$$+2 \left(\begin{array}{c|c} 1 & 2 \\ 3 & -2 \end{array} \right) - 4$$

$$m = \frac{-4}{2} = -2 \quad (1, 2)$$

$$2 = -2(1) + b$$

$$2 = -2 + b$$

$$4 = b$$

$$\boxed{y = -2x + 4}$$

d. If $f(4) = -2$ and $f(8) = 4$

$$+4 \left(\begin{array}{c|c} 4 & -2 \\ 8 & 4 \end{array} \right) + b$$

$$m = \frac{6}{4} = \frac{3}{2} \quad (4, -2)$$

$$-2 = \frac{3}{2}(4) + b$$

$$-2 = 6 + b$$

$$-8 = b$$

$$\boxed{y = \frac{3}{2}x - 8}$$

e. If $g(2) = 3$ and $g(6) = 5$

$$\begin{array}{l} +4 \left(\begin{array}{l|l} 2 & 3 \\ \hline 6 & 5 \end{array} \right) + 2 \\ m = \frac{2}{4} = \frac{1}{2} \quad (2, 3) \\ 3 = \frac{1}{2}(2) + b \\ 3 = 1 + b \\ 2 = b \end{array} \quad \boxed{y = \frac{1}{2}x + 2}$$

f. Passing thru $(-1, 3)$ and parallel to $y = 2x + 2$

$$\begin{array}{l} m = 2 \\ 3 = 2(-1) + b \\ 3 = -2 + b \\ 5 = b \end{array} \quad \boxed{y = 2x + 5}$$

g. Passing thru $(18, 2)$ and parallel to $3y - x = -12$

$$\begin{array}{l} \frac{3y - x = -12}{+x + x} \\ \frac{3y}{3} = \frac{x - 12}{3} \\ y = \frac{1}{3}x - 4 \end{array} \quad \begin{array}{l} m = \frac{1}{3} \\ 2 = \frac{1}{3}(18) + b \\ 2 = 6 + b \\ -4 = b \end{array} \quad \boxed{y = \frac{1}{3}x - 4}$$

h. Passing thru $(7, 10)$ and perpendicular to $y = \frac{1}{2}x - 9$

$$\begin{array}{l} m = -2 \\ 10 = -2(7) + b \\ 10 = -14 + b \\ 24 = b \end{array} \quad \boxed{y = -2x + 24}$$

i. Passing thru $(-3, 3)$ and perpendicular to $2y = 8x - 6$

$$\begin{array}{l} \frac{2y}{2} = \frac{8x - 6}{2} \\ y = 4x - 3 \end{array} \quad \begin{array}{l} m = -\frac{1}{4} \\ 3 = -\frac{1}{4}(-3) + b \\ 3 = \frac{3}{4} + b \\ 2.25 = b \end{array} \quad \boxed{y = -\frac{1}{4}x + 2.25}$$