

UNIT 2 CA

DIRECTIONS: 1-3: Evaluate or solve. Leave answers in function notation.

1)  $f(x) = -|-2x + 6| + 3$ ; Find  $f(x) = 1$

$$1 = \frac{-|-2x + 6| + 3}{-3}$$

$$\frac{-2}{-1} = \frac{-|-2x + 6|}{-1}$$

$$2 = |-2x + 6|$$

$$2 = -2x + 6$$

$$-4 = -2x \rightarrow x = 2$$

$$-2 = -2x + 6$$

$$-8 = -2x$$

$$4 = x$$

$f(2) = 1$  or  $f(4) = 1$

2)  $h(b) = -3\sqrt{10b} + 6\sqrt{20b}$ ; Find  $h(5)$

$$h(5) = -3\sqrt{10(5)} + 6\sqrt{20(5)}$$

$$= -3\sqrt{50} + 6\sqrt{100}$$

$$= -3\sqrt{25 \cdot 2} + 6 \cdot 10$$

$$= -3 \cdot 5\sqrt{2} + 60$$

$h(5) = -15\sqrt{2} + 60$

3)  $g(u) = u^2 + 9u$ ; Find  $g(u) = 90$

$$90 = u^2 + 9u$$

$$-90 \quad -90$$

$$0 = u^2 + 9u - 90$$

$$0 = (u + 15)(u - 6)$$

$$u + 15 = 0$$

$$u = -15$$

$$u - 6 = 0$$

$$u = 6$$

$g(-15) = 90$  or  $g(6) = 90$

DIRECTIONS #4 - 8: Complete each using the corresponding graph.

4) Domain:

$$-2 \leq x \leq 2$$

5) Range:

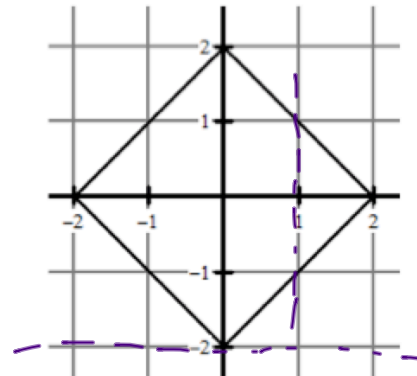
$$-2 \leq y \leq 2$$

6) Find  $f(1)$

$$1 \text{ or } -1$$

7) Find  $x$ , when  $f(x) = -2$

$$x = 0$$



8) Is the relation a function? Why or why not?

NO IT FAILS THE VERTICAL LINE TEST

9) Find the slope  $(-3, -9), (12, -4)$

$$\frac{-4 - (-9)}{12 - (-3)} = \frac{5}{15}$$

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

RISES

10) Tell whether the two lines are parallel, perpendicular, or neither. Line 1: through  $(10, 2)$  and  $(5, 5)$ . Line 2: through  $(-4, 1)$  and  $(-7, -4)$ .

Line 1:  $\frac{5 - 2}{5 - 10} = -\frac{3}{5}$

Line 2:  $\frac{-4 - 1}{-7 - (-4)} = \frac{-5}{-3} = \frac{5}{3}$

PERP  
THEY ARE NEGATIVE RECIPROALS.

11) After 3 minutes there are 16 Survivor contestants standing on a log. After 19 minutes there are 8 survivor contestants standing. What's the average rate of change in terms of Survivor contestants on the log per minute?

Contestants  
min x

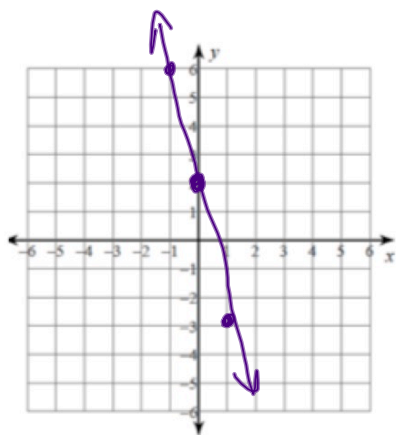
(3, 16)  
(19, 8)

$$\frac{8-16}{19-3} = \frac{-8}{16} =$$

$-\frac{1}{2}$  contestants per minute

DIRECTIONS: Graph each equation.

12)  $y = -5x + 2$



13) Find the intercepts then graph.

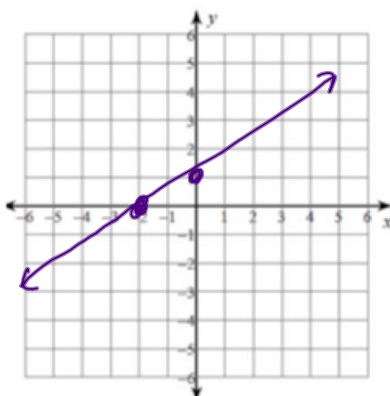
$$3x - 6y = -6$$

$$3x = -6$$

$$x = -2$$

$$-6y = -6$$

$$y = 1$$

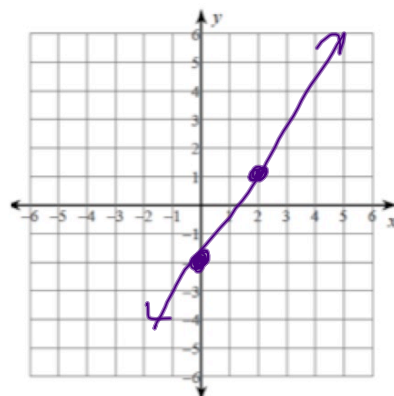


14) Graph.

$$3x - 2y = 4$$

$$-2y = -3x + 4$$

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



Directions: #18-19: Write the equation of the lines with given information in slope-intercept form.

15) through: (3, -1) and (4, -2)

$$m = \frac{-2 - (-1)}{4 - 3} = \frac{-1}{1} = -1$$

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

$$y + 1 = -1(x - 3)$$

$$y + 1 = -x + 3$$

-1

-1

$$y = -x + 2$$

16) through (2, 1) and perp. to  $y = \frac{1}{2}x + 2$

$$m = \frac{1}{2} \rightarrow -2$$

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

$$y - 1 = -2(x - 2)$$

$$y - 1 = -2x + 4$$

+1

+1

$$y = -2x + 5$$

Application and Extension

[www.flippedmath.com](http://www.flippedmath.com) is on FIRE! A big company offers to come in and pay the Algebras to advertise on their page because they are getting so many hits. The CEO of the company says that at 8 hits they'll get \$6 and that when they get to 56 hits they'll get \$12.

a) What is the average rate of change of dollars per hit that the CEO is offering?

$$\frac{\$ (y)}{\text{hit} (x)} \quad (8, 6) \quad (56, 12) \quad m = \frac{12-6}{56-8} = \frac{6}{48} = \frac{1}{8}$$

$\$ \frac{1}{8}$  per hit

b) What's the equation of the line for this situation?

$$y - 6 = \frac{1}{8}(x - 8)$$

$$y - 6 = \frac{1}{8}x - 1$$

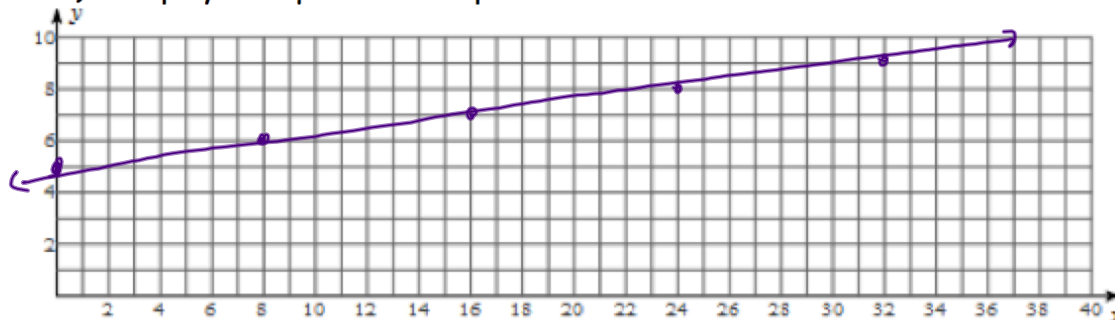
$$y = \frac{1}{8}x + 5$$

c) How ~~many hits~~ much \$ does this model have the Algebras start with?

much \$

\$5

d) Graph your equation from part c.



e) If the Algebras had 1000 hits in one day how much money would the company give the boys?

$$y = \frac{1}{8}(1000) + 5$$

$$y = 125 + 5$$

$$= \$130$$

f) How many hits would it take for the Algebras to make \$1000 from the company?

$$1000 = \frac{1}{8}x + 5$$

$$995 = \frac{1}{8}x$$

$$7960 \text{ hits} = x$$