

Name: _____

Period: _____

Quiz: Direct Variation, Parallel & Perpendicular Lines, Graphing Inequalities & Piecewise Functions

1.) Suppose y varies directly as x , and $y = 24$ when $x = 32$.

a. Write a direct variation equation that relates x and y .

$$\frac{24}{32} = m \frac{32}{32}$$

$$\frac{3}{4} = m$$

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

b. Use the direct variation equation to find y when $x = 8$.

$$y = \frac{3}{4}(8)$$

$$y = 6$$

2.) The amount of money earned babysitting varies directly with the number of hours spent babysitting.

On Friday, you made \$60 dollars for 4 hours.

a. Write a direct variation equation that relates x and y .

$x = \# \text{ of hours}$
 $y = \$ \text{ earned}$

$$60 = m(4)$$

$$\frac{60}{4} = \frac{m}{4}$$

$$15 = m$$

$$y = 15x$$

b. If you babysat for 6 hours, how much money would you make?

$$y = 15(6)$$

$$y = \$90$$

c. If you made \$75, how many hours were spent babysitting?

$$\frac{75}{15} = \frac{15x}{15}$$

$$5 = x$$

hours

Write an equation in slope intercept form that passes through the given point and is parallel to the graph of each equation.

3.) Equation: $4x - 2y = 4$

$$\begin{array}{r} -4x \quad -4x \\ \hline -2y = -4x + 4 \\ \hline -2 \quad -2 \\ \hline y = 2x - 2 \end{array}$$

Point: (1,1)

$$m = 2$$

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

$$y - 1 = 2x - 2$$

$$y = 2x - 1$$

Write an equation in slope intercept form that passes through the given point and is perpendicular to the graph of each equation.

4.) Equation: $6x + 2y = 10$

Point: (3,2)

$$\frac{2y = -6x + 10}{2}$$

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

$$y = -3x + 5$$

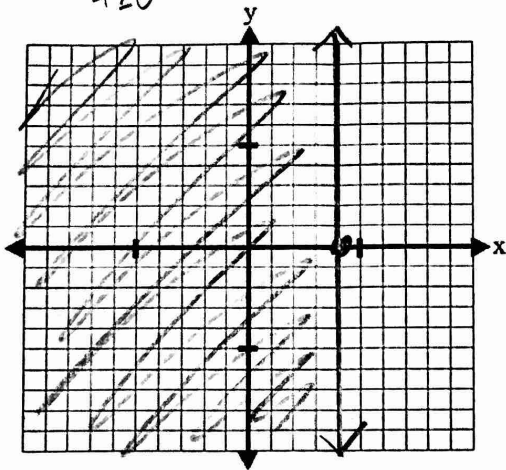
$$y - 2 = \frac{1}{3}(x - 3)$$

$$y - 2 = \frac{1}{3}x - 1$$

$$y = \frac{1}{3}x + 1$$

Graph each Inequality and answer the question below.

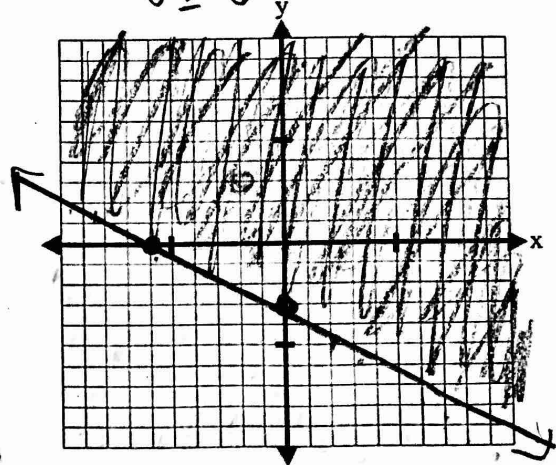
5.) $4 \geq x$
 $x \geq 0$



Is (0,0) a solution?

Yes

6.) $x + 2y \geq -6$ (-6,0) (0,-3)
 $0 \geq -6$

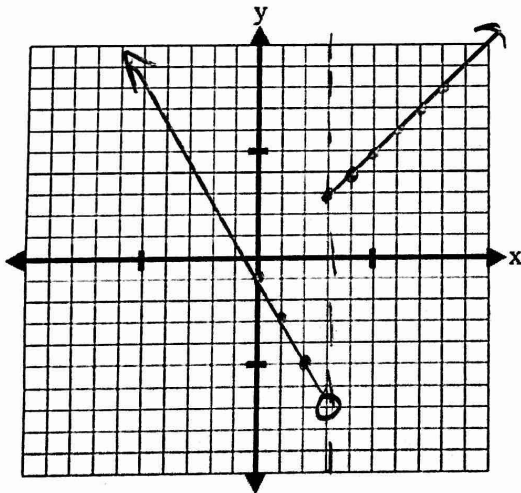


Is (-2,3) a solution?

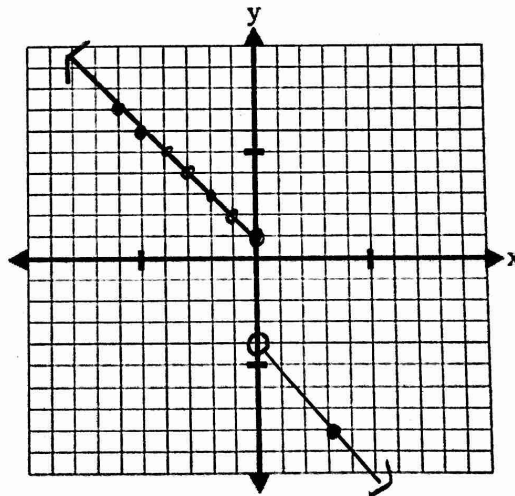
Yes

Graph each of the following piecewise functions. For #8, evaluate the piecewise function.

7.) $f(x) = \begin{cases} -2x - 1, & x < 3 \\ x, & x \geq 3 \end{cases}$



8.) $f(x) = \begin{cases} -x + 1 & x \leq 0 \\ -\frac{4}{3}x - 4 & x > 0 \end{cases}$



a. $f(-4) = 5$

$-(-4) + 1$

b. $f(0) = 1$

$0 + 1$

c. $f(3) = -8$

$-4 - 4$

9.) Evaluate $g(x) = \begin{cases} x + 7 & x > 3 \\ 5 & x \leq 3 \end{cases}$

a. $g(-4) = 5$

b. $g(3) = 5$

c. $g(5) = 12$