

**Pop Quiz**  
**Get out a scrap sheet of paper.**

- 1. Write the slope formula.**
- 2. How do slopes of parallel lines compare?**
- 3. How do slopes of perpendicular lines compare?**

## Bellwork

### 10/04/2011

1. Find the slope of the line containing the points  $(4,-3)$  and  $(5,2)$ .

2. Line  $k$  passes through the points  $(-1,2)$  and  $(3,5)$ . Line  $n$  passes through the points  $(3,7)$  and  $(6,3)$ . Are lines  $k$  and  $n$  parallel, perpendicular, or neither?

**Geometry**  
**3.5 Write and Graph Equations of Lines**  
**Standard(s): 2,3**

**Vocabulary:**

1. Slope-Intercept Form:  $y=mx+b$ , where  $m$  is the slope and  $b$  is the  $y$ -intercept.

2. Standard Form:  $Ax+By=C$ , where  $A$  is positive and both  $A$  and  $B$  are not equal to zero. *NOTE: Use intercepts to graph!*

3. Point-Slope Form:  $y-y_1=m(x-x_1)$ , given slope and a point on the line.

4. To Find Intercepts:

x-intercept

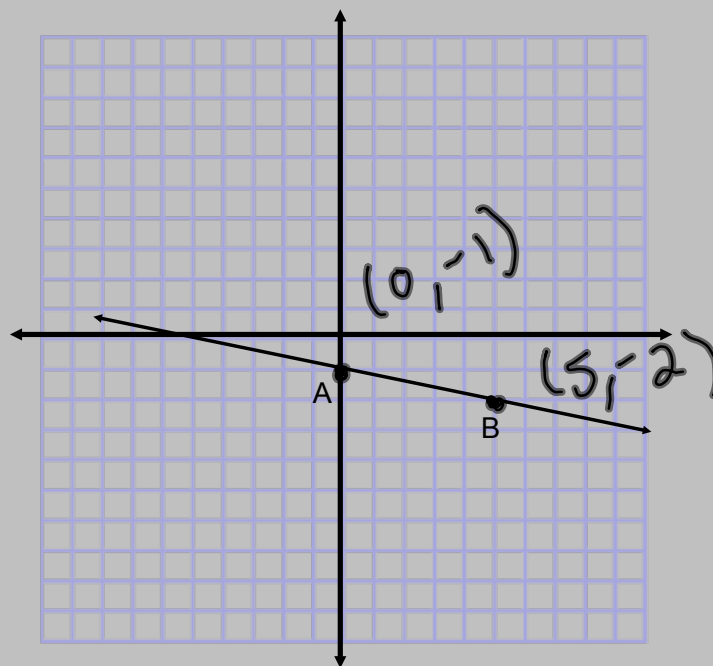
Plug 0 in for  $y$

y-intercept

Plug 0 in for  $x$

## Write an Equation of a Line from a Graph

Write an equation of the line shown in slope-intercept form.



$$y = mx + b$$

Slope ?

$$m = -\frac{1}{5}$$

y-intercept ?

$$b = -1$$

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

\*Could you have used two different points to find the slope?

## Write an Equation of Parallel & Perpendicular Lines

Write an equation of the line passing through the point (2,-3) that is **parallel** to the line with the equation  $y=6x+4$ .

$$m = 6, \quad \begin{matrix} x_1 & y_1 \\ (2, & -3) \end{matrix} \quad y = mx + b$$

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

$$y + (-3) = 6(x - 2)$$

$$y + 3 = 6x - 12$$

$$y = 6x - 15$$

Write an equation of the line a passing through the point (3,-4) that is **perpendicular** to the line with the equation  $y = -\frac{1}{2}x - 1$ .

$$m = 2, \quad (3, -4)$$

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

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

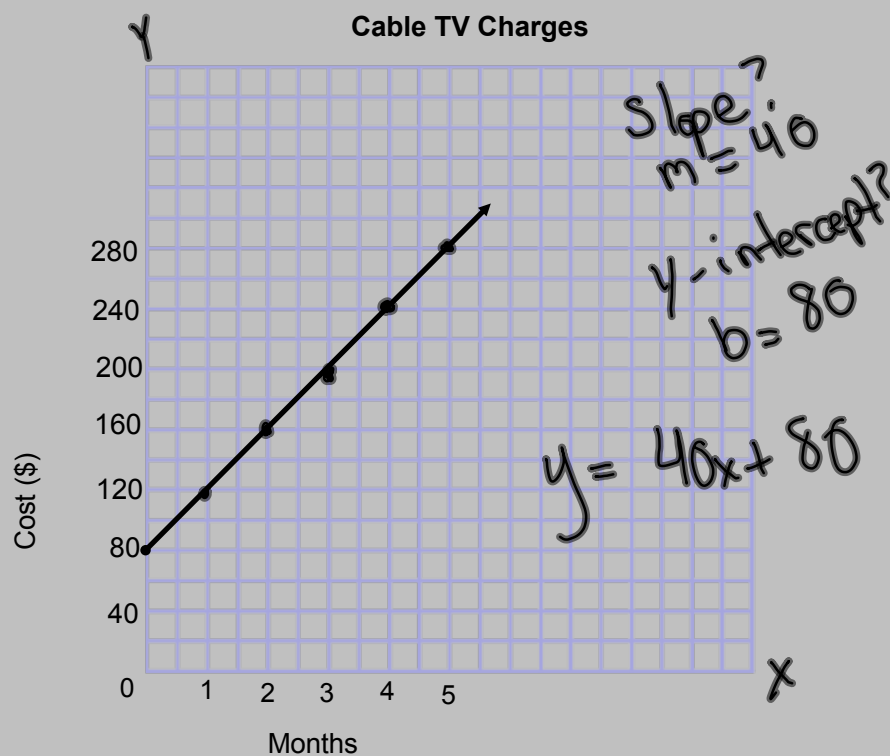
$$y + (-4) = 2(x - 3)$$

$$y + 4 = 2x - 6$$

$$y = 2x - 10$$

## Write an Equation of a Line from a Graph

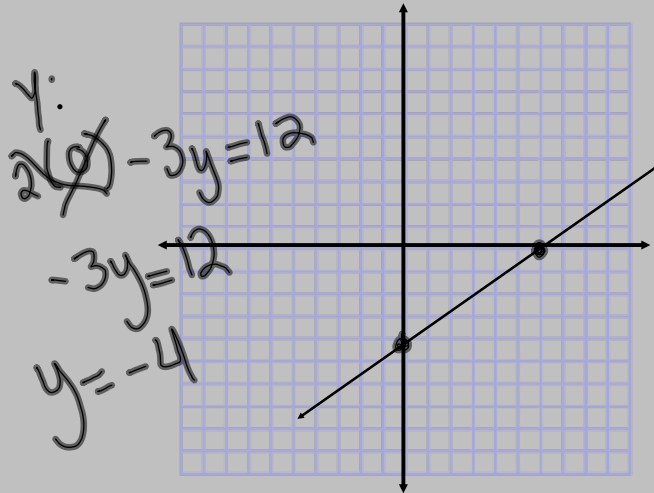
The graph shows the cost of having cable television installed in your home. Write an equation of the line. Explain the meaning of the slope and the y-intercept of the line.



## Graph a Line in Multiple Ways

Graph  $2x-3y=12$ .

Pull



$x:$   
 $2x - 3(\cancel{0}) = 12$   
 $2x = 12$   
 $x = 6$

$$y = mx + b$$

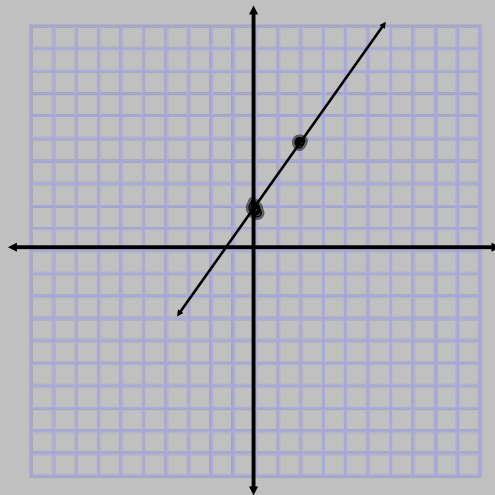
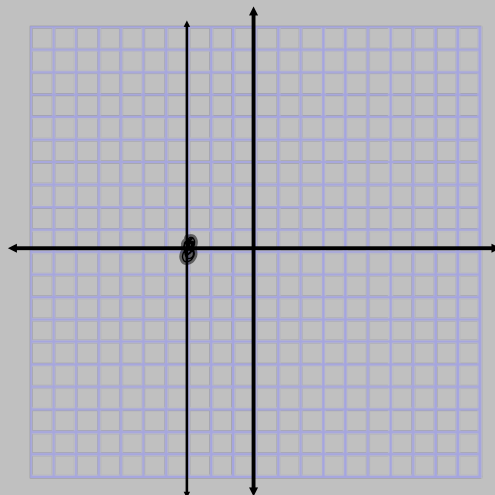
$$2y + 1 = 3x + 5$$

$$\frac{2y}{2} = \frac{3x}{2} + \frac{4}{2}$$

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

$$m = \frac{3}{2}$$

$$b = 2$$

Graph  $2y+1=3x+5$ .Graph  $x=-3$ .

# Homework Assignment

## Worksheet 3.5B



