

## Lesson 5-3A Slope-Intercept Form

### Problem 1 Identifying Slope and y-Intercept

What are the slope and y-intercept of the graph of  $y = 5x - 2$ ?

**Got It?** 1. a. What are the slope and y-intercept of the graph of  $y = -\frac{1}{2}x + \frac{2}{3}$ ?

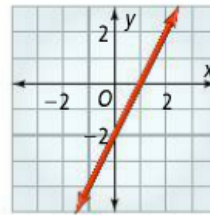
### Problem 2 Writing an Equation in Slope-Intercept Form

What is an equation of the line with slope  $-\frac{4}{5}$  and y-intercept 7?

**Got It?** 2. What is an equation of the line with slope  $\frac{3}{2}$  and y-intercept  $-1$ ?

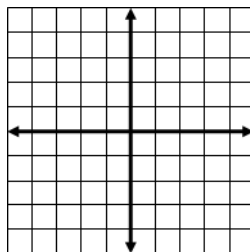
### Problem 3 Writing an Equation From a Graph

Which equation represents the line shown?



### Problem 5 Graphing a Linear Equation

What is the graph of  $y = 2x - 1$ ?



## Notes for writing an equation of a line through 2 points:

**Example 1:** Write the equation of a line passing through (2, 3) and (6, 5).

Step 1: **Find the slope.**

$$m = \frac{\quad}{\quad} = \quad = \quad$$

Step 2: **Substitute** your slope and one point into  $y = mx + b$

$$(\quad) = (\quad)(\quad) + b$$

Step 3: **Solve** for b

Step 4: Write the equation of the line using the slope (m) and y-intercept (b) you found in step 1 and step 3.

$$y = (\quad)x + (\quad)$$

**Example 2:** Write the equation of a line passing through (-2, 5) and (1, -1)

Step 1:

Step 2:

Step 3:

Step 4:

**Example 3:** Write the equation of a line passing through (3,2) and (6,1).

Step 1:

Step 2:

Step 3:

Step 4:

## Notes for writing the equation of a line given a slope and a given point.

**Example 4:** Write the equation of a line passing through (2,3) with slope =  $-\frac{1}{2}$

Step 1: **Find the slope.**

We don't have to find the slope, they GAVE it to us!

Step 2: **Substitute** your slope and one point into  $y = mx + b$

$$( \quad ) = ( \quad ) ( \quad ) + b$$

Step 3: **Solve** for b

Step 4: Write the equation of the line using the slope(m) and y-intercept (b) you found in step 1 and step 3.

$$y = ( \quad )x + ( \quad )$$

**Example 5:** Write the equation of the line with  $m = \frac{3}{5}$  that passes through (-10,-8)

Step1:

Step 2:

Step 3:

Step 4:

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**Example 6:** Write the equation of the line with  $m = -1$  that passes through (-2,-7)

Step1:

Step 2:

Step 3:

Step 4:

## Getting Into Lines



In this activity, you will practice writing the equations of a variety of different lines.

Write the equation of the line that passes through the two given points:

1.  $(-4, -5)$  and  $(8, 4)$

2.  $(-8, 4)$  and  $(-4, 1)$

3.  $(6, 0)$  and  $(5, -3)$

4.  $(1, 1)$  and  $(7, 13)$

Sometimes you may be asked to write the equation of a line that passes through a certain point and has a certain slope. This may sound confusing at first, but it is actually easier than writing the equation of a line through two points, because the slope calculation has already been done. (Hint: as you do questions 5-6, compare your work to questions 1-2.)

Given the slope and a point on the line, write the equation.

5.  $m = \frac{3}{4}$ ,  $(8, 4)$

6.  $m = -\frac{3}{4}$ ,  $(-4, 1)$

7.  $m = -3$ ,  $(-1, -6)$

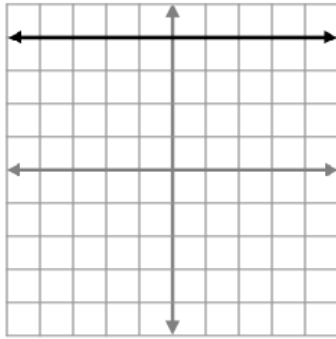
8.  $m = \frac{1}{2}$ ,  $(6, 3)$

9.  $m = 0, (3, -5)$

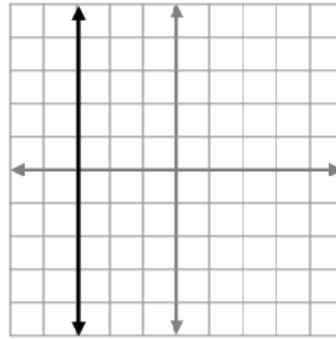
10.  $m = \text{undefined}, (-2, -6)$

Fill in the blanks for each graph shown.

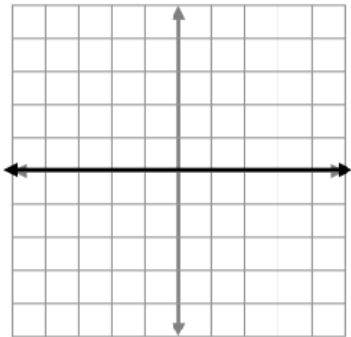
11. Slope: \_\_\_\_\_  
y-intercept: \_\_\_\_\_  
Equation: \_\_\_\_\_



12. Slope: \_\_\_\_\_  
y-intercept: \_\_\_\_\_  
Equation: \_\_\_\_\_



13. Slope: \_\_\_\_\_  
y-intercept: \_\_\_\_\_  
Equation: \_\_\_\_\_



14. Slope: \_\_\_\_\_  
y-intercept: \_\_\_\_\_  
Equation: \_\_\_\_\_

