

Date: \_\_\_\_\_

Review:

What do we need to know to write the equation of a line in slope y-intercept form?

Once we have an equation in slope y-intercept form, how can we write it in standard form?

6.5 & 6.6 Finding Equations of Lines

1) Finding an Equation of a Line Given the Slope and y - Intercept

- Substitute both values in to  $y = mx + b$ .
- Rearrange to standard form IF YOU ARE ASKED TO!

Example: Write the equation of a line that has a slope of  $-\frac{3}{5}$  and a y - intercept of 2 in both forms.

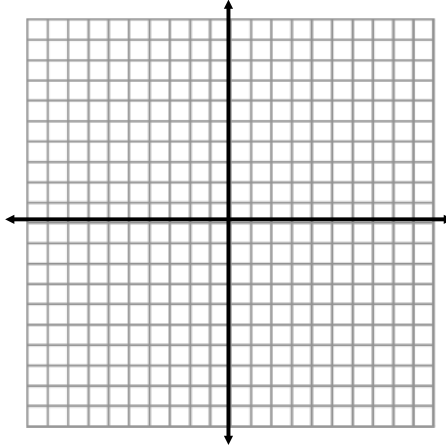
2) Finding an Equation of a Line Given a Point and the Slope

We talked about this briefly the other day. If you know that a line has a slope of -4 and that it passes through the point (-2, 3), how can we write the equation in slope y - intercept form?

Steps	Example (see above)

Practice Problems:

- 1) A line has a slope of  $-3$  and passes through the point  $(-1, 2)$ . Find its equation in slope y-intercept form and in standard form and graph the line.



- 2) A line has a slope of  $\frac{2}{3}$  and an x - intercept of  $-5$ . Write its equation in slope y-intercept form.

2) Finding an Equation Given Two Points on a Line

Steps:	Example: A line passes through the points $(-2, 1)$ and $(7, -3)$ . Find its equation in standard form.

### Practice Problems

1) A line passes through the points  $(-3, 5)$  and  $(2, 4)$ .

a) Find its equation in slope y-intercept form.

$$m = -3$$

↙

$$y = mx + b \leftarrow \text{Solve}$$

↗

$$(-1, 15)$$

Values of x and y  
come from the point

b) Determine the x and y-intercepts for the line.

2) A line passes through the point  $(-6, 4)$  and has an x-intercept of  $-1$ .  
Determine the equation of the line in standard form.

### 3) Making Connections to Parallel and Perpendicular Lines

#### Review:

- PARALLEL lines have the SAME SLOPE.
- PERPENDICULAR lines have slopes that are NEGATIVE RECIPROCAL.

#### Practice Problems

1) Write the equation of a line that is parallel to  $y = -3x + 5$  and passes through the point  $(-2, 5)$

2) Write the equation of a line that is perpendicular to  $y = 2x - 1$  and passes through the point  $(5, 3)$ .

