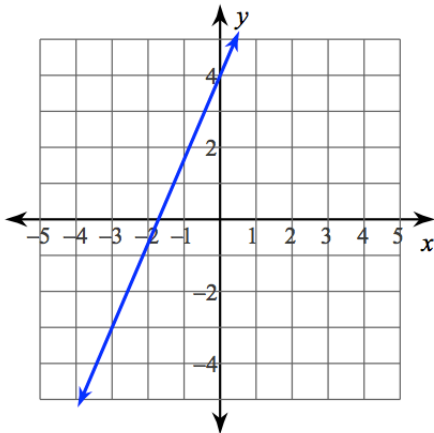


Writing Equations of Lines

How can we write the equation of a line when we have the slope and a point or two points?

Quick Review:

Let's start with a graph:



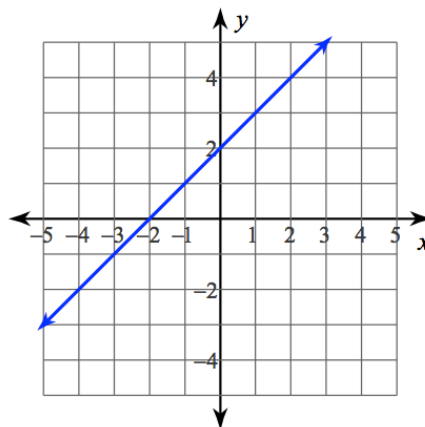
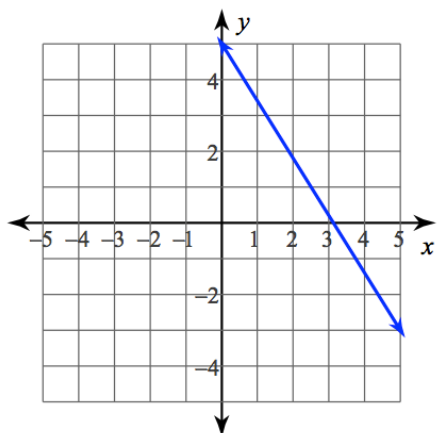
What are the two things you need to write the equation of a line?

$$y = mx + b$$

Can you see either of these on the graph easily?

What is the equation of this line?

Try these two:



What if you are given the slope and a point (NOT the y-intercept)?

through: $(-4, 4)$, slope = -1

Let's start with another form for the equation of a line...

Point-slope Form:

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

Write the equation of the line
through: $(-4, 4)$, slope = -1

Point-slope Form:

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

- Substitute the point into y_1 and x_1 and the slope into m
- Solve for y

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

through: $(-5, -5)$, slope = $\frac{9}{5}$

through: $(-1, -3)$, slope = 2

Given two points, write the equation of the line.

through: $(5, 4)$ and $(-5, 2)$

What do we need to find first?

Then use EITHER point for substitution into y_1 and x_1

Given two points, write the equation of the line.

through: $(-3, -5)$ and $(-1, 3)$

through: $(3, -3)$ and $(5, 5)$

through: $(4, 1)$ and $(1, -2)$

through: $(-1, 2)$ and $(1, 5)$

through: $(-4, 2)$ and $(-1, 0)$

through: $(1, -4)$ and $(-2, 5)$

Homework
Worksheet