

Date: _____

Determining the Equation of a Line – Part 2

Recall:

Slope Intercept Form

$$y = mx + b$$

Example 1

Find the equation of the line with a slope of -4 that passes through the point $(10, -7)$.

We have the slope but not the y-intercept. How could you find it?

1. Graph, but only if y-intercept is an integer
2. Table of Values, but may have to do a LOT of work Algebra

Steps:

1. Replace the 'm' in $y = mx + b$ with the slope.
2. Replace the x and y with the x and y coordinates of the given point.
3. Solve for 'b'.
4. Write your equation.

Example 2

Find the equation of the line with a slope of $\frac{1}{2}$ that passes through the point $(-6, -8)$.

Example 3

Find the equation of the line that passes through $(2, 2)$ and $(5, 11)$.

What is different? _____

Find the slope first. Then find the y-intercept using $y = mx + b$.

Example 4

Find the equation of the line that passes through $(-1,4)$ and $(5,13)$.

Homework:

1. Find the equation of the line passing through the point $(3, -1)$ if the slope is $\frac{1}{2}$.
2. Find the equation of the line passing through the points $(3, -1)$ and $(2, -3)$.
3. Find the equation of each line that:
 - a) passes through the points $(-1,3)$ and $(2, -2)$
 - b) has a slope of 2 and passes through the point $(0,6)$
 - c) has a slope of $-\frac{2}{3}$ and goes through the point $(3,0)$
 - d) passes through the points $(4,5)$ and $(-1, -1)$
 - e) has a y-intercept of $\frac{3}{2}$ and a slope of -2
 - f) has a slope of 3 and passes through the point $(4,5)$