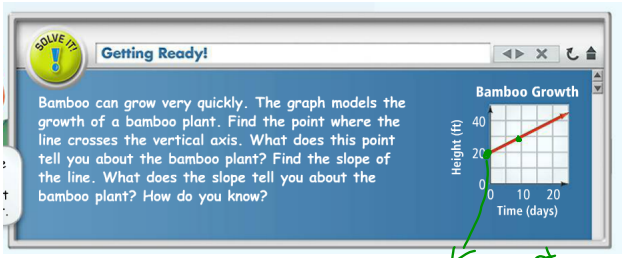
Algebra 1

Section 5-3

Slope-Intercept Form

Goal: * to write linear equations using slope-intercept form

* to graph linear equations in slope-intercept form



Slope = 1
1 ft/day

starting pt

family of functions: functions with common characteristics

parent function: simplest function with from the family

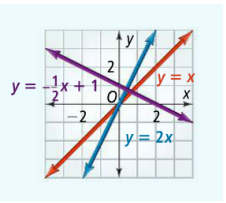
linear functions parent: y = x

Sample linear functions.

Characteristics of these?

Straight lines

What do you notice about the parent function?



pos. Slope, Slope = 1
goes through origin

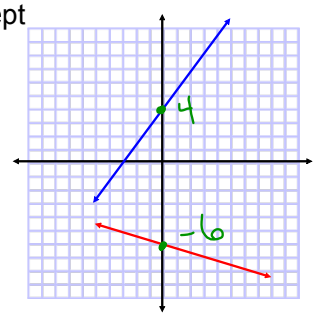
Examples of linear functions:

$y = -2x$ $y = x - 100$ $y = \frac{x+2}{5}$

Non-examples of linear functions:

$y = \sqrt{x}$ $y = |x - 4|$ $y = x^2$ $y = x^3$

What is the y-intercept of each line?



Define y-intercept:

where the line crosses the y-axis

Linear functions can be written in slope-intercept form.

$y = mx + b$

m = slope

b = y-intercept

$y = 2 - 3x$

$m = -3$

$y\text{-int} = 2$

What are the slope and y-intercept of the following:

$y = -4x - 5$ $y = mx + b$

$-2x - 6y = 5$

$+2x \quad +2x$

$\frac{-6y}{-6} = \frac{2x}{-6} + \frac{5}{-6}$

$y = -\frac{1}{3}x - \frac{5}{6}$

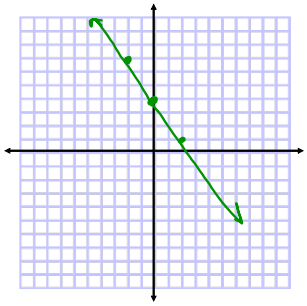
If the slope is 1/2 and the y-intercept is -7, what is the equation of the line?

$y = \frac{1}{2}x - 7$

Graph:

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

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



Finding the slope-intercept equation from 2 points.

(3, -2) and (1, -3)

$y = mx + b$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 + (+3)}{3 - 1} = \frac{1}{2}$

$y = \frac{1}{2}x + b$

$-2 = \frac{1}{2}(3) + b$

$-1.5 \quad -1.5$

$b = -3.5$

$y = \frac{1}{2}x - 3.5$

Now try: (1, -6) and (-3, 10)

$y = -4x - 2$

Hwk: pg. 312-313

#8, 12, 20, 22-46 evens

50, 52, 60