

February 23, 2015^{5th}_{6th}

Starter

Compute each. All answers should be in simplest form.

1.

$$\begin{array}{r} 5\frac{2}{3} \frac{4}{6} \\ - 1\frac{1}{6} \frac{1}{6} \\ \hline 4\frac{3}{6} \\ = 4\frac{1}{2} \end{array}$$

2.

$$\begin{array}{r} 3\frac{1}{2} \frac{4}{8} \\ + 2\frac{7}{8} \frac{7}{8} \\ \hline 5\frac{11}{8} \\ = 6\frac{3}{8} \end{array}$$

3.

$$\begin{array}{r} 3 \cancel{4} \frac{1}{4} \frac{15}{12} \\ - 1\frac{5}{6} \frac{10}{12} \\ \hline 2\frac{5}{12} \end{array}$$

2/23 - More Slope - computing algebraically

What is the definition of **slope**?
Steepness of a line

How do you find the slope of a line on a graph?

$\frac{\text{rise}}{\text{run}}$ ← count the # of spaces going up
 ← count the # of spaces going right

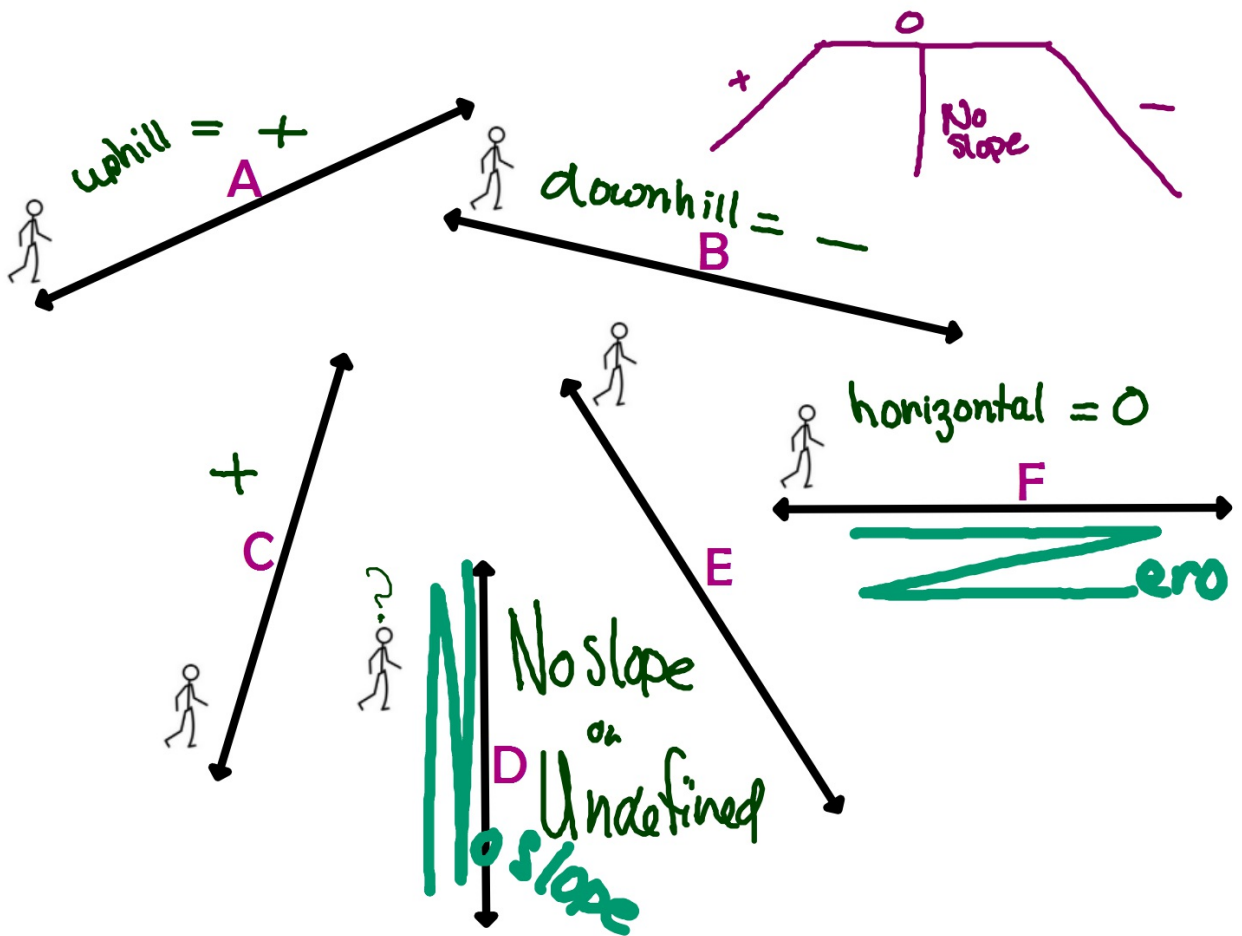
Zombies rise out of the grave before they run

There are 3 different types of slopes we've not covered yet...

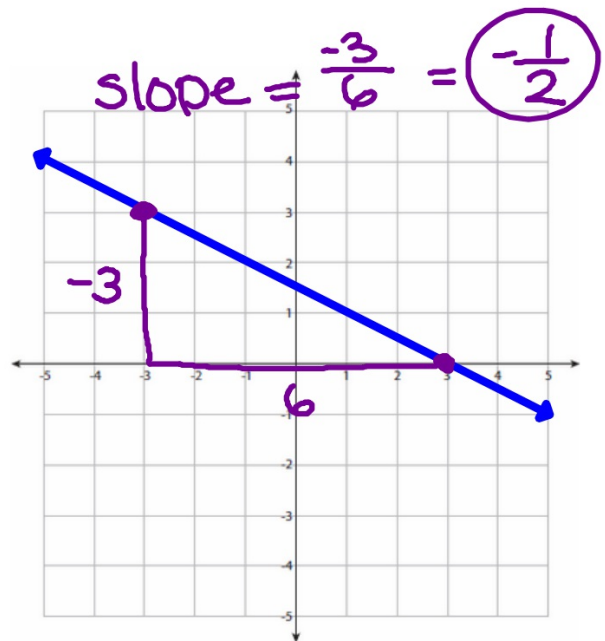
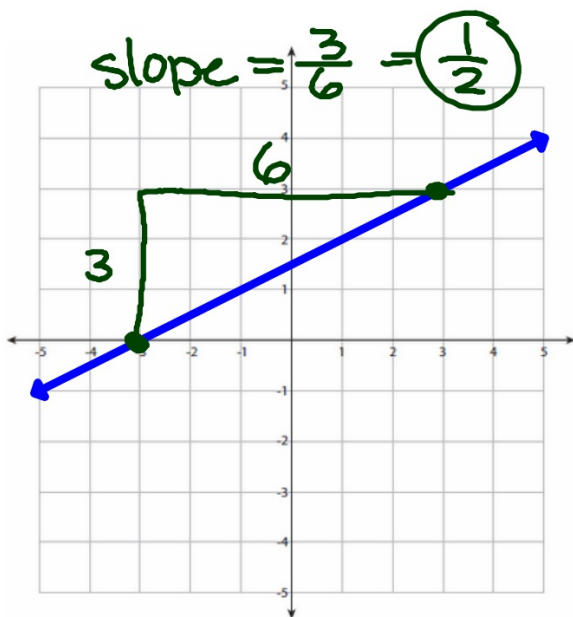
1. Negative
2. No Slope
3. Zero



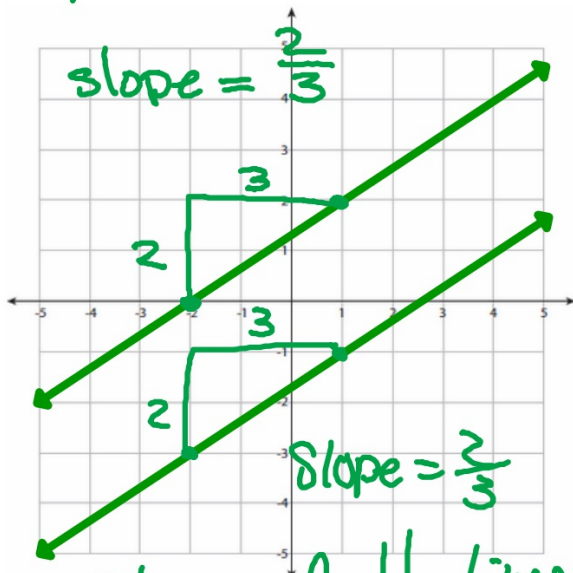
What can you tell about the slopes of these lines?



What can you tell about the slopes of these two lines?

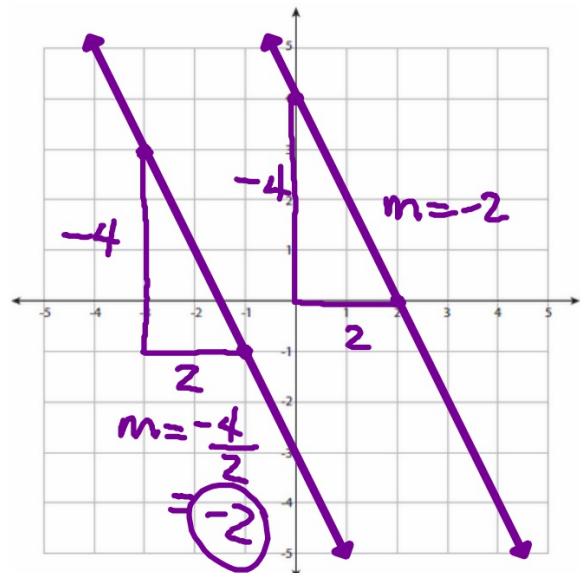


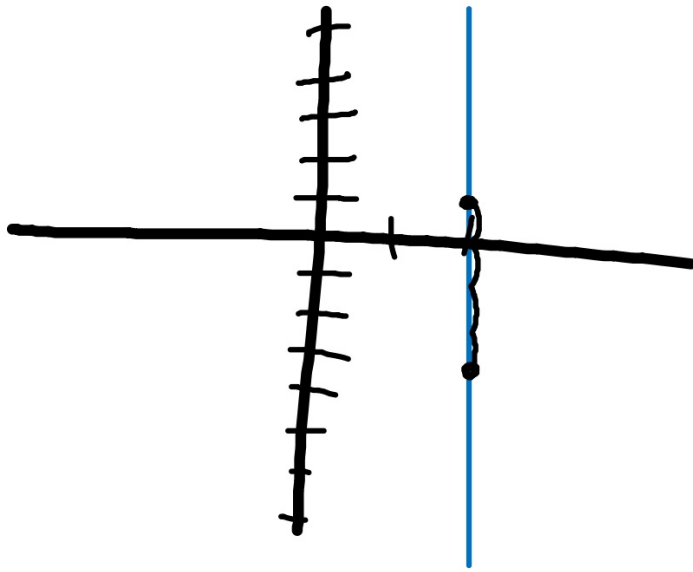
What about these two?
parallel



Slopes of || lines
are THE SAME

slope abbreviation = m
or these two?





$$\frac{\text{rise}}{\text{run}} = \frac{4}{0}$$

$$\frac{12}{6} = 2$$

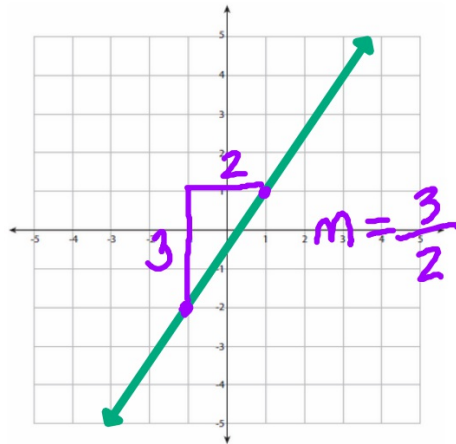
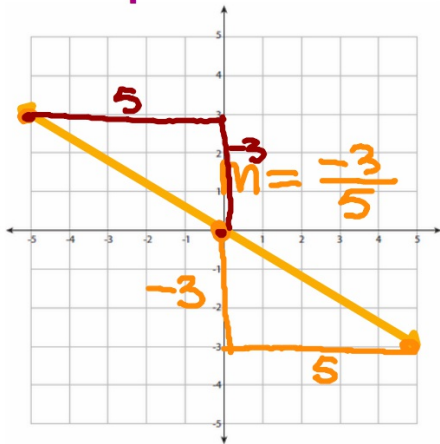
$$\frac{12}{4} = 3$$

$$\frac{12}{3} = 4$$

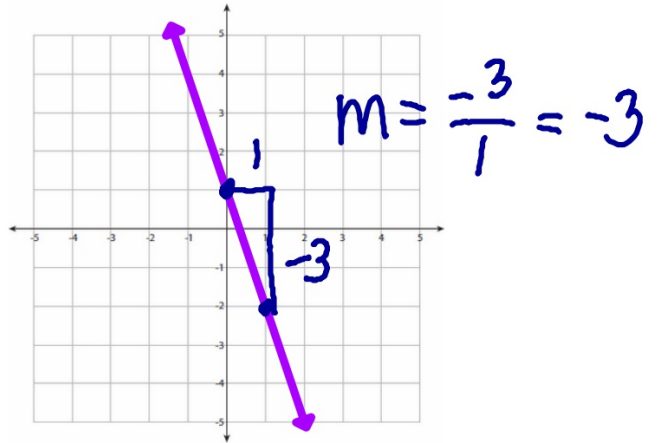
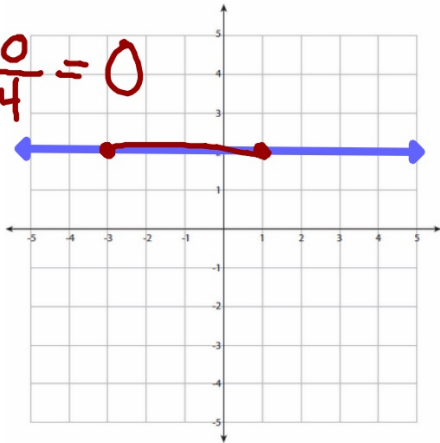
$$\frac{12}{0} = ?$$



Find the slopes of these lines:



$$\frac{\text{rise}}{\text{run}} = \frac{0}{4} = 0$$



You can do it algebraically, without a graph, if you have **two points** written as **coordinates**.

(x_1, y_1) and (x_2, y_2)

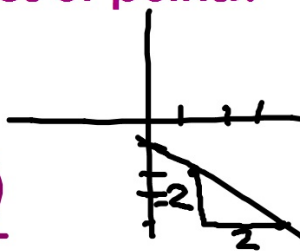
Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slopes of the lines that go through each set of points.

$$\begin{array}{cc} (1, -2) & (3, -4) \\ x_1, y_1 & x_2, y_2 \end{array}$$

$$m = \frac{-4 - (-2)}{3 - 1}$$



Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\begin{aligned} &= \frac{-4 + 2}{3 - 1} \\ &= \frac{-2}{2} \\ &= -1 \end{aligned}$$

$$\begin{array}{cc} (-2, -4) & (3, 1) \\ x_1, y_1 & x_2, y_2 \end{array}$$

$$m = \frac{1 - (-4)}{3 - (-2)}$$

$$= \frac{5}{5}$$

$$= 1$$

$$\begin{array}{cc} (-3, 4) & (1, -2) \\ x_1, y_1 & x_2, y_2 \end{array}$$

$$m = \frac{-2 - 4}{1 - (-3)}$$

$$= \frac{-6}{4}$$

$$= -\frac{3}{2}$$

$$(-4, 5) (2, -3)$$

$$\begin{aligned} m &= \frac{-3 + 5}{2 + (+4)} \\ &= \frac{-8}{6} \\ &= -\frac{4}{3} \end{aligned}$$

$$(0, -5) (-3, 4)$$

$$\begin{aligned} m &= \frac{4 + (+5)}{-3 - 0} \\ &= \frac{9}{-3} \\ &= -3 \end{aligned}$$

$$(-4, 3) (2, 3)$$

$$\begin{aligned} m &= \frac{3 - 3}{2 + (+4)} \\ &= \frac{0}{6} = 0 \\ &= 0 \end{aligned}$$

$$-3 + 4$$

$$(-1, 4) (-1, -3)$$

$$\begin{aligned} m &= \frac{-3 + 4}{-1 + (-1)} \\ &= \frac{-7}{0} = \emptyset \end{aligned}$$

Homework

Green WS 10

Due Wednesday