Warm up

Identify which is slope intercept form and which is point slope form?

1) $y - 4 = 8(x - 2)$ Point slope

2) $y = 5x + 2$ Slope int (5 = slope, 2 = y-int)

write the equation of the line in Point-slope form

3) (2, 7), (-3, -3)

$$\frac{-3-7}{-3-2} = \frac{-10}{-5} = 2$$

$$y - 7 = 2(x - 2)$$

2-5 Parallel and Perpendicular Lines

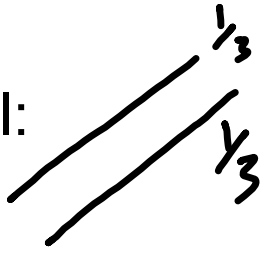
Objectives

I can write an equation for a line given two points on the line.

I can identify and write the slope of a line parallel or perpendicular to a given line

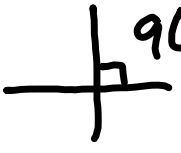
Vocabulary

Parallel:



lines with the same slope

Perpendicular:

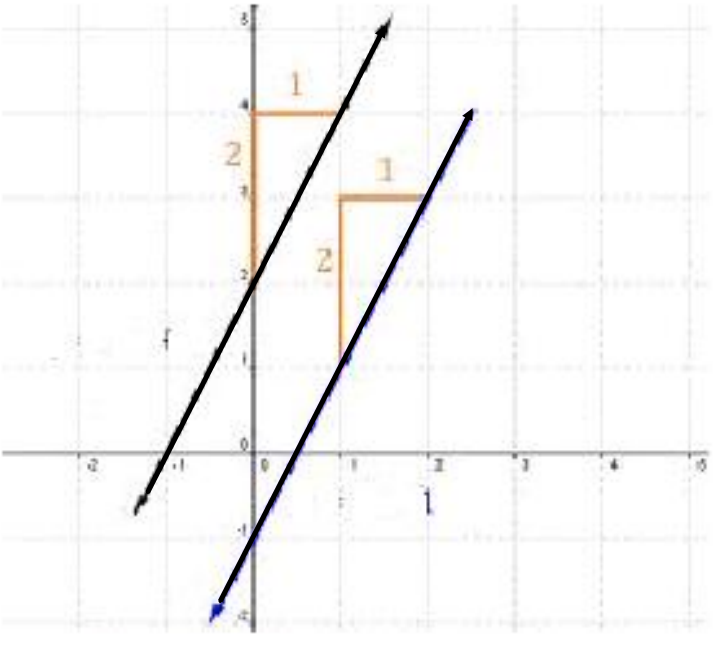


lines that intersect @ a 90° angle.

slope are reciprocals

$\frac{1}{3} \rightarrow \perp \frac{-3}{1}$

Parallel Lines



Never Cross.

Slopes are the same

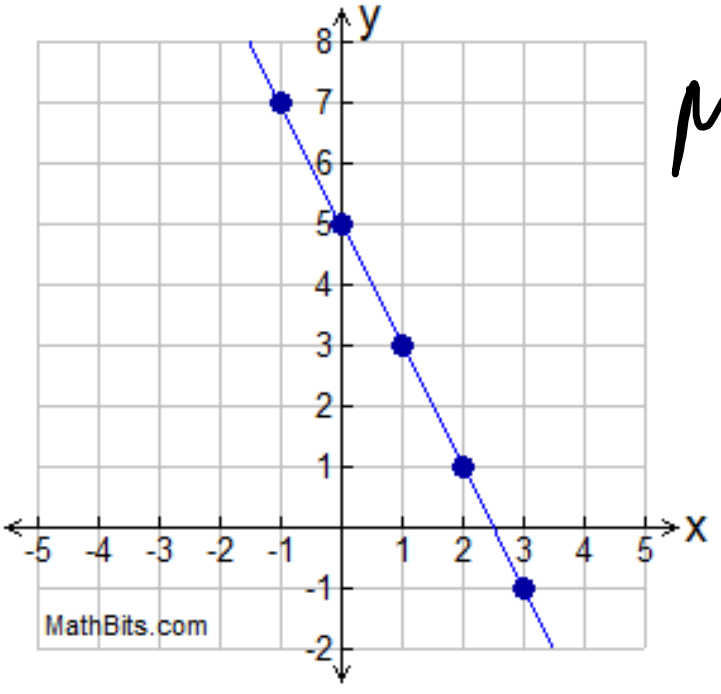
What do you notice about the slope of parallel lines?

Find the slope of the line parallel to

$$y = 3x + 3$$

$// m = 3$

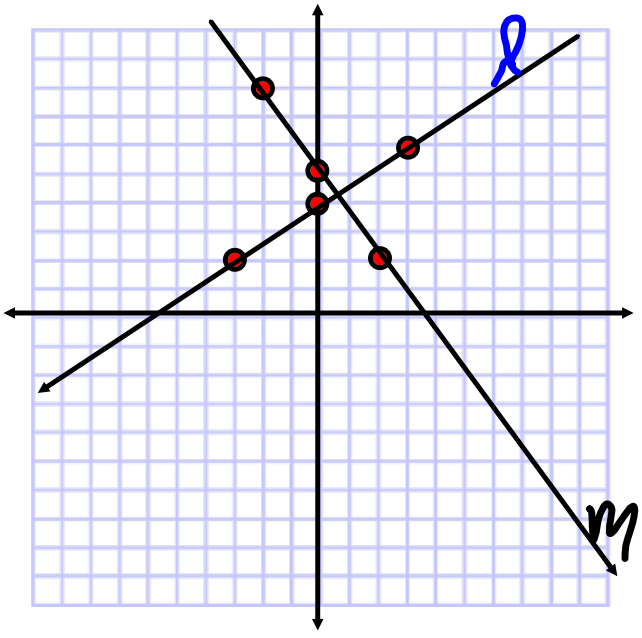
Find the slope of the line parallel to



$$M = \frac{\text{rise}}{\text{run}}$$

$$= -\frac{2}{1}$$

Perpendicular Lines



Find the slope of both lines.

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

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

What do you notice about the slope of perpendicular lines?

One +
Other −
reciprocals

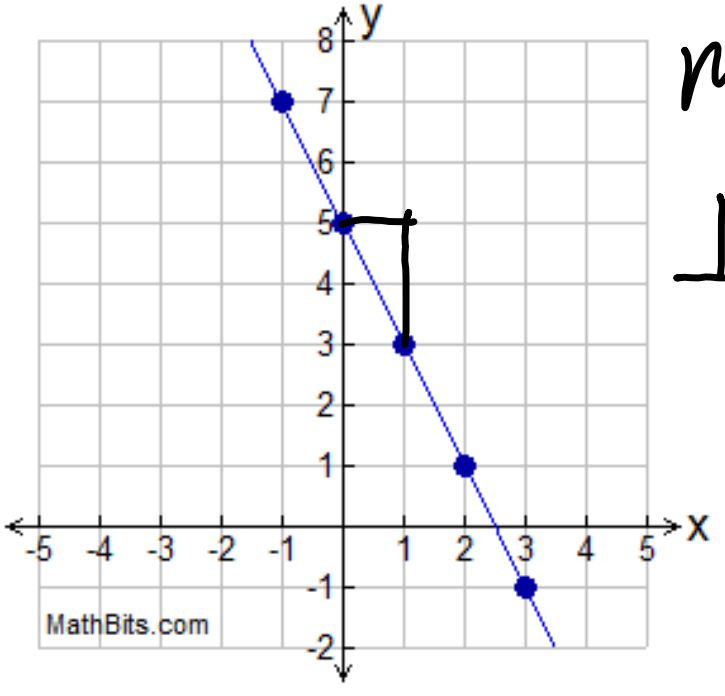
Practice finding a perpendicular slope of the given slope

m = 1/2 $\perp m = -\frac{2}{1}$

m = $\frac{-2}{1}$ $\perp m = \frac{1}{2}$

m = -5/2 $\perp m = \frac{2}{5}$

Find the slope of the line perpendicular to



$m = \frac{-2}{1}$

$\perp m = \frac{1}{2}$

Write the slope of a line that is parallel to the given line

1. $y = 2x+3$

$m = 2$

2. $y = 1/2x - 5$

$m = \frac{1}{2}$

Write the slope of a line that is perpendicular to the given line

1. $y = 1/2x - 2$

$\perp m = \frac{-2}{1}$

2. $y = -8/5x - 4$

$\perp m = \frac{5}{8}$

Decide whether the lines with the given equations are *parallel, perpendicular,* or *neither.*

a. $y = \frac{1}{3}x - 1$

$y = -3x + 2$

$-\frac{1}{1}$

Perp.

b. $y = -5x - 2$

$y = 5x + 2$

$\frac{1}{5}$

Neither

c. $y = \frac{5}{6}x + 8$

$y = -\frac{6}{5}x - 4$

perp.

d. $f(x) = 2x - 7$

$g(x) = 2x + 5$

Parallel