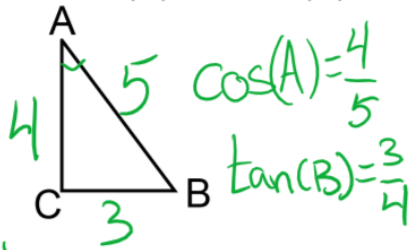


Warm Up

If the $\sin(A) = \frac{3}{5}$, what is the $\cos(A)$ and $\tan(B)$?



missing side

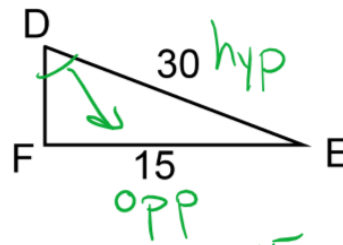
$$3^2 + b^2 = 5^2$$

$$9 + b^2 = 25$$

$$b^2 = 16$$

$$b = 4$$

Find the measure of angle D.



$$\sin(D) = \frac{15}{30}$$

$$D = \sin^{-1}\left(\frac{15}{30}\right)$$

$$D = 30^\circ$$

Goals For today:

- Refresh skills on finding the slope of a line.
- Determine if two lines are parallel, perpendicular or neither based off their slope.

$$y = mx + b \leftarrow \begin{matrix} \text{slope} \\ \text{y-intercept} \end{matrix}$$

Identify slope of the following lines

Parallel and Perpendicular Lines

1. $y = 3x + 5$

$m = 3$

2. $y = \frac{1}{4}(x+8)$

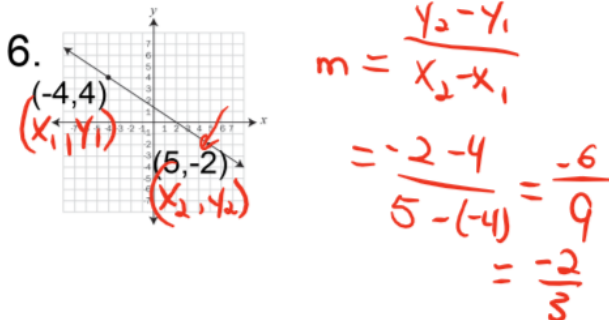
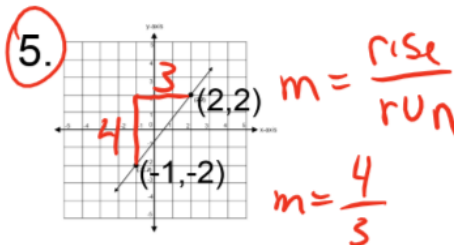
$y = \frac{1}{4}x + 2$ $m = \frac{1}{4}$

3. $y + 2 = 6(x-2)$

$y + 2 = 6x - 12$
 $y = 6x - 14$ $m = 6$

4. $3y = 9x + 15$

$\frac{3y}{3} = \frac{9x + 15}{3}$
 $y = 3x + 5$
 $m = 3$



Review

Parallel and Perpendicular Lines

Parallel

Lines that never intersect and in the same plane



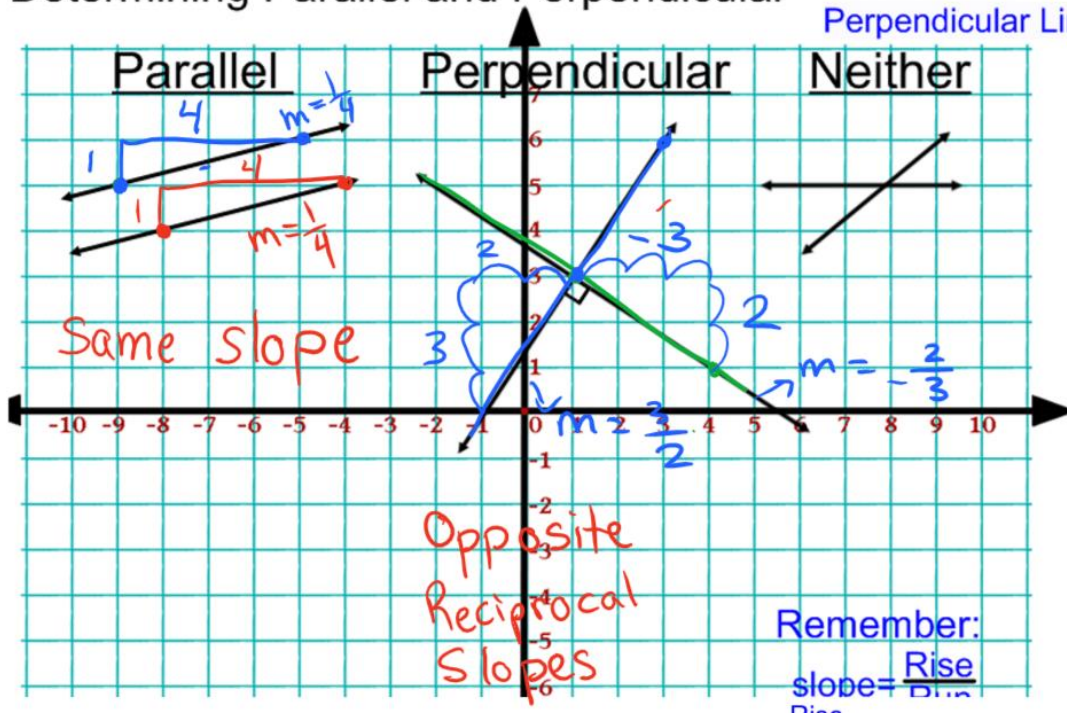
Same slope

Perpendicular

Intersecting lines that form a 90° angle

Determining Parallel and Perpendicular

Parallel and Perpendicular Line



Determining if the given pair of lines is parallel, perpendicular, same, or neither.

~~Parallel~~, ~~Perpendicular~~, Same, or Neither

Line A has a slope of 4.

$$m = \frac{4}{1}$$

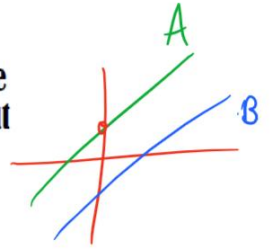
Line B has a slope of $-\frac{1}{4}$.

$$m = -\frac{1}{4}$$

~~Parallel~~, ~~Perpendicular~~, Same, or Neither

Same Slope.

Lines A and B have the same slope, but different y-intercepts.



~~Parallel~~, ~~Perpendicular~~, Same, or Neither

Line A:
 $3x = y - 12$

$$y = mx + b$$

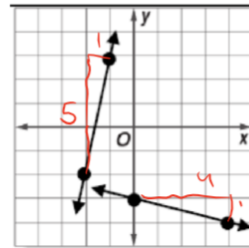
$$y = 3x + 12 \quad m = 3$$

Line B:
 $y + \frac{1}{3}x = 0$

$$y = -\frac{1}{3}x + 0 \quad m = -\frac{1}{3}$$

Opposite reciprocal slopes

~~Parallel~~, ~~Perpendicular~~, Same, or Neither



$$M = \frac{5}{1}$$

$$M = -\frac{1}{4}$$

Slopes do not relate

~~Parallel~~, ~~Perpendicular~~, Same, or Neither

Line A passes through $(3, 5)$ and $(-1, 8)$. Line B passes through $(2, -2)$ and $(-3, 6)$.

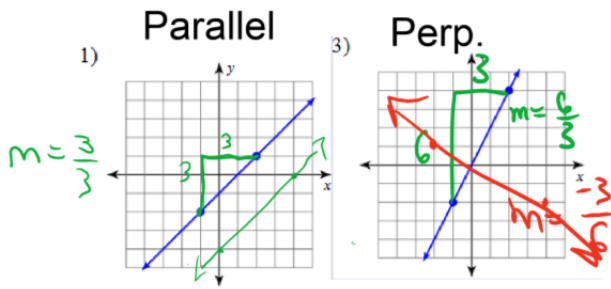
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{8 - 5}{-1 - 3} = \frac{3}{-4}$$

$$m = \frac{6 - (-2)}{-3 - 2} = \frac{8}{-5}$$

Slopes are not related

Practice Set 1 1, 3, 5, 9



Perp. old $m = \frac{7}{5}$
 5) $y = \frac{7}{5}x + 2$
 new $m = -\frac{5}{7}$ $y = -\frac{5}{7}x$

Parallel
 9) $(-8, -2), (-7, 5)$ $m = \frac{y_2 - y_1}{x_2 - x_1}$
 $\frac{5 - (-2)}{-7 - (-8)} = \frac{7}{1} = 7$
 $y = 7x$

1. Find the slopes
2. Determine new lines slope
3. Write an equation with that slope

Recap of what we learned so far.

1. Perpendicular lines have what types of slope?

Opposite Reciprocals

2. If the slope of two lines is the same and the y-intercept is different, what type of lines are they?

They are parallel lines because their slope is the same