

Welcome! Please grab your ISN and have a seat! This will be for a grade pencil/paper!!!!

Write the point-slope form of the equation of the line described.

18) through:  $(5, 2)$ , parallel to  $y = \frac{7}{5}x + 4$

$$y - 2 = \frac{7}{5}(x - 5) \quad y = \frac{7}{5}x - 5$$

~~$y - 2 = \frac{7}{5}x - 7$~~   
 ~~$y = \frac{7}{5}x - 5$~~

19) through:  $(3, 4)$ , parallel to  $y = \frac{9}{2}x - 5$

$$y - 4 = \frac{9}{2}(x - 3)$$
$$y - 4 = \frac{9}{2}x - \frac{27}{2}$$
$$y = \frac{9}{2}x - \frac{19}{2}$$

Sep 11-2:05 PM

## WWK 19 and/or 20

*perpendicular lines* - lines that intersect at a 90° angle - have opposite reciprocal slopes.

$$y = \frac{2}{3}x - 1 \quad y = -\frac{3}{2}x + 4$$

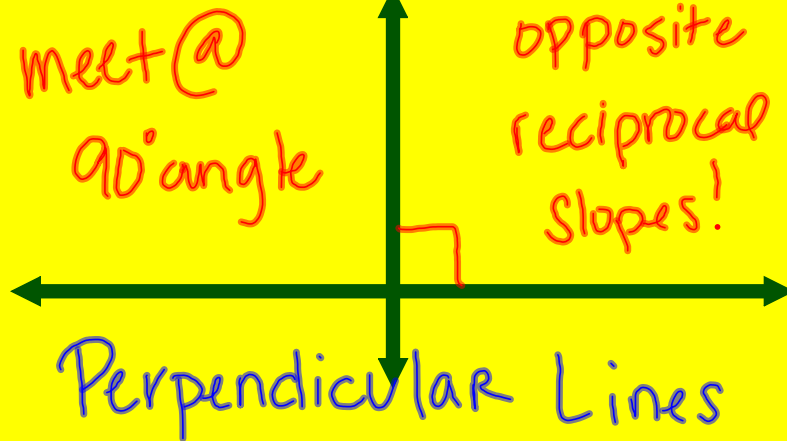
*opposite reciprocal* -

fractions that have opposite numerators & denominators AND opposite signs.

$$\frac{-2}{7} \times \frac{+7}{2}$$

Sep 11-2:58 PM

## TOC 29-30 Perpendicular Lines



Sep 11-3:00 PM

## TOC 29-30 Perpendicular Lines

Write the equation of a line that is perpendicular to $y = 2/3x + 1$ and passes through the point $(-4, 0)$ .	
<b>steps</b>	<b>equation</b>
Identify the <u>slope</u> of the line you are given. Perpendicular lines have the <u>opposite reciprocal</u> slope!	$y = \frac{2}{3}x + 1$ ↑ slope $\frac{-3}{2}$
<b>LABEL YOUR SLOPE AS <math>m</math> AND YOUR ORDERED PAIR AS <math>(x_1, y_1)</math>.</b>	$m = \frac{-3}{2}$ $(-4, 0)$ $x_1$ $y_1$
Plug in your slope and point into point-slope form, which is $y - y_1 = m(x - x_1)$	$y - y_1 = m(x - x_1)$ $y - 0 = \frac{-3}{2}(x - (-4))$
<b>Distribute the slope.</b>	$y = \frac{-3}{2}x - 6$
Get <u><math>y</math></u> by itself.	$y = \frac{-3}{2}x - 6$
<b>WRITE IN SLOPE-INTERCEPT FORM, WHICH IS <math>y = mx + b</math></b>	

Sep 11-3:01 PM

Ex 1 (pg 29) Write the equation of the line that is perpendicular to:

a)  $3x + 4y = 12$  through  $(2, 0)$

$$y - 0 = \frac{4}{3}(x - 2)$$

$$y = \frac{4}{3}x - \frac{8}{3}$$

b)  $y = -\frac{1}{2}x + 3$  through  $(-1, 1)$

$$m = \frac{2}{1} \quad y - 1 = \frac{2}{1}(x + 1)$$

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

$$y = \frac{2}{1}x + 3$$

c)  $-2x - 6y = 12$  through  $(0, 0)$

$$-2x - 6y = 12$$

$$\frac{-6y}{-6} = \frac{2x + 12}{-6}$$

$$y = -\frac{1}{3}x - 2$$

$$y - y_1 = m(x - x_1)$$

$$y - 0 = -3(x - 0)$$

$$y = -3x$$

$$-\frac{1}{3}x - 2$$

d)  $y = \frac{2}{5}x$  through  $(2, -4)$

Sep 11-3:02 PM

## Homework

**Write an equation for the line that is:  
perpendicular to the given line and that  
passes through the given point.**

10.  $(6, 4)$   $y = 3x - 2$

11.  $(-5, 5)$   $y = -5x + 9$

12.  $(-1, -4)$   $y = \frac{1}{6}x + 1$

13.  $(1, 1)$   $y = -\frac{1}{4}x + 7$

14.  $(12, -6)$   $y = 4x + 1$

15.  $(0, -3)$   $y = -\frac{4}{3}x - 7$

Sep 11-3:04 PM

Welcome! Please grab your JSN and have a seat! Your warmup is in your Google classroom!!

Sep 22-8:45 AM

Geometry	Name _____	ID _____
Slope of Perpendicular Lines		Date _____ Period _____
Write the slope-intercept form of the equation of the line described.		
1) through: $(-3, 4)$ perp. to $y = \frac{3}{5}x + 5$	2) through: $(-2, -2)$ , perp. to $y = -2x + 2$	
$\frac{3}{5} \rightarrow \frac{-5}{3}$		
3) through: $(1, 1)$ , perp. to $y = -\frac{1}{4}x - 3$	4) through: $(-5, 1)$ , perp. to $y = -\frac{5}{3}x - 4$	
5) through: $(-5, -2)$ , perp. to $y = -\frac{5}{6}x - 3$	6) through: $(1, -1)$ , perp. to $y = \frac{1}{3}x + 4$	
7) through: $(-2, 4)$ , perp. to $y = \frac{2}{7}x - 3$	8) through: $(-2, -5)$ , perp. to $y = -\frac{1}{3}x + 4$	
9) through: $(-1, 1)$ , perp. to $y = \frac{3}{5}x - 2$	10) through: $(1, 5)$ , perp. to $y = -\frac{1}{6}x - 3$	

Sep 22-8:45 AM

Welcome! Please grab your warmup notebook and ISN and have a seat!

Fill in the missing data:

Slope of a line	Slope of any line parallel to it	Slope of any line perpendicular to it
4		
-5		
3		
$\frac{1}{3}$		
9		
$-\frac{4}{7}$		
6		
$-\frac{2}{3}$		
-1		
$\frac{1}{2}$		

Sep 14-8:04 AM