Name _____

Slopes of Parallel and Perpendicular Lines

Date _____ Period _____

If two lines are parallel, then their slopes are equal.
If two lines are perpendicular, then their slopes are opposite reciprocals of each other.

How to create an opposite (negative) reciprocal

reciprocal	opposite reciprocal	reciprocal	opposite reciprocal
$\frac{4}{7}$		-6	
$\frac{1}{3}$		$-\frac{1}{2}$	

If two lines are parallel, then their slopes are equal.
If two lines are perpendicular, then their slopes are opposite reciprocals of each other.

Determine if the following lines are parallel, perpendicular, or neither.

slope-intercept form		slope-intercept form	
$y = 5x - 2$	$y = 5x + 4$	$y = 4x + 1$	$y = -\frac{1}{4}x - 1$

Determine if the following lines are parallel or perpendicular.

Put equations in slope-intercept form

$6x + 3y = 9$ $2x + y = 1$

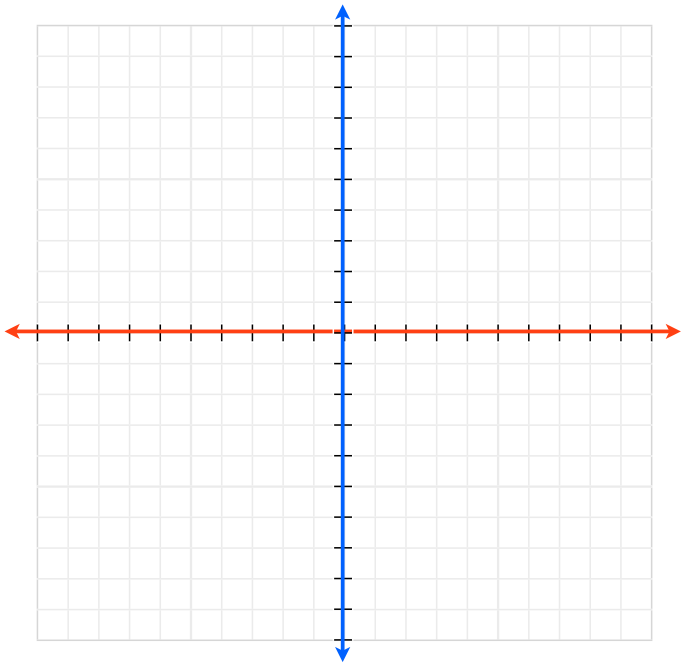
Put equations in slope-intercept form

$x + 4y = 12$ $8x - 2y = 10$

Find the equation of the following line...

Parallel to $y = 2x + 3$

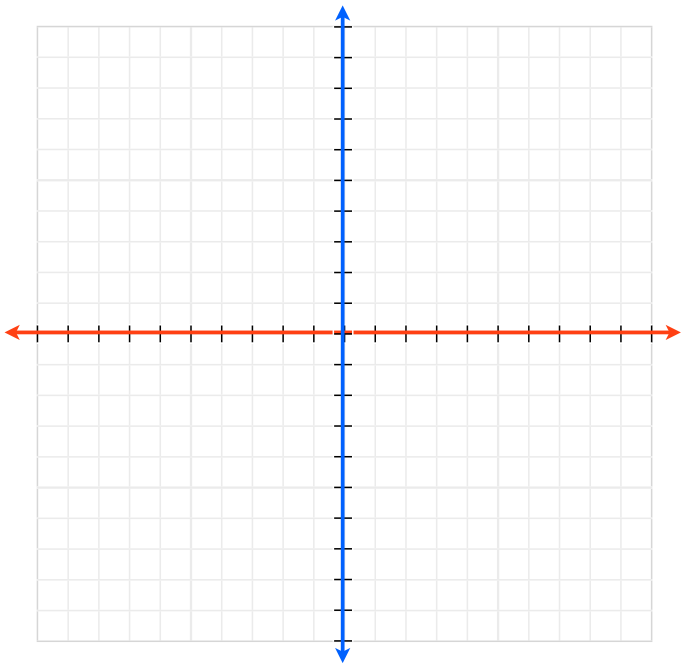
Through Point (2,-3)



Find the equation of the following line...

Perpendicular to $y = \frac{1}{3}x + 3$

Through Point (-4,7)



Find the equation of the following line...

Parallel to $y = -3x + 4$

Through Point (1,4)

Find the equation of the following line...

Perpendicular to $y = 2x + 1$

Through Point (4,-5)

Parallel lines have the same slopes

Perpendicular lines have opposite reciprocal slopes