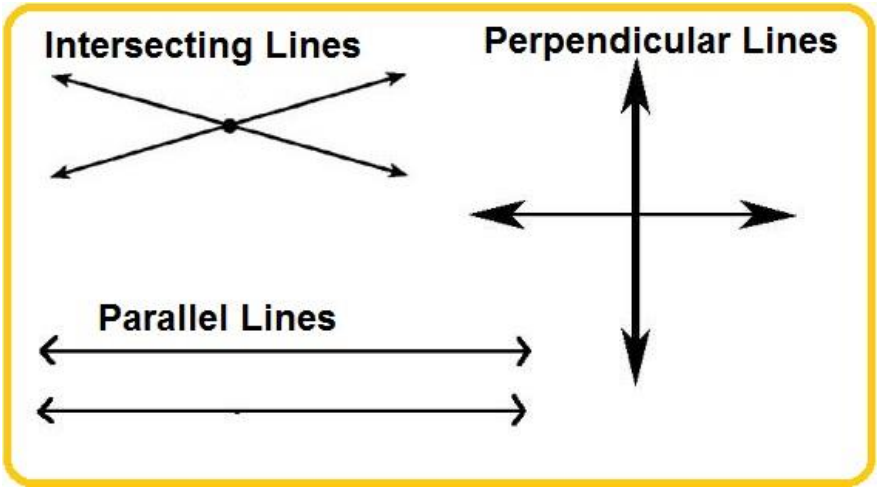
CHAPTER 2:

Parallel and Perpendicular Lines



Find an Equation of a Parallel Line

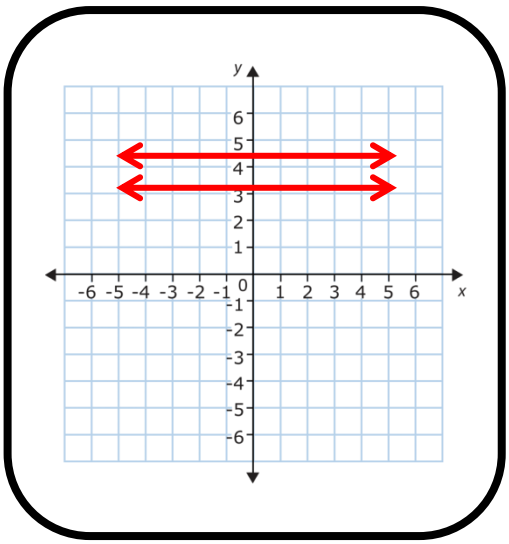
$y = 2x + 3$

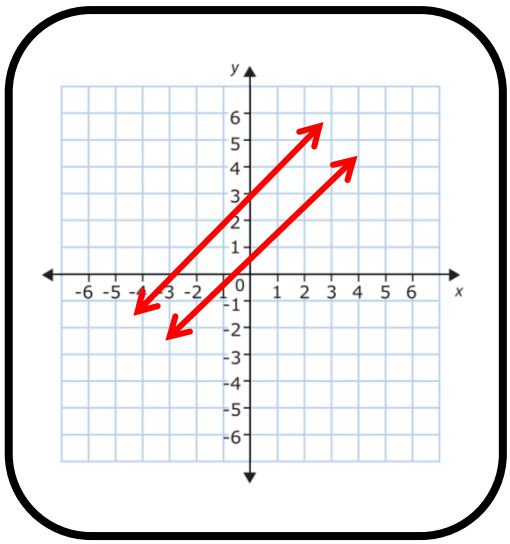
$y = \frac{1}{3}x - 1$

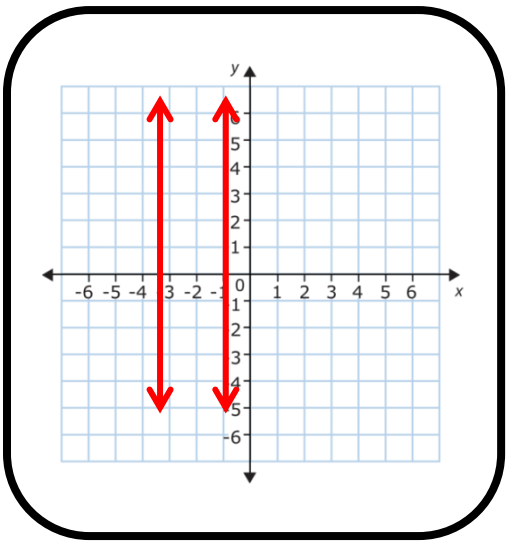
NEW SLOPE

SLOPE of a Parallel line is the SAME!!!

PARALLEL LINE







Find an Equation of a Perpendicular Line

PERPENDICULAR LINES

FLIPPED

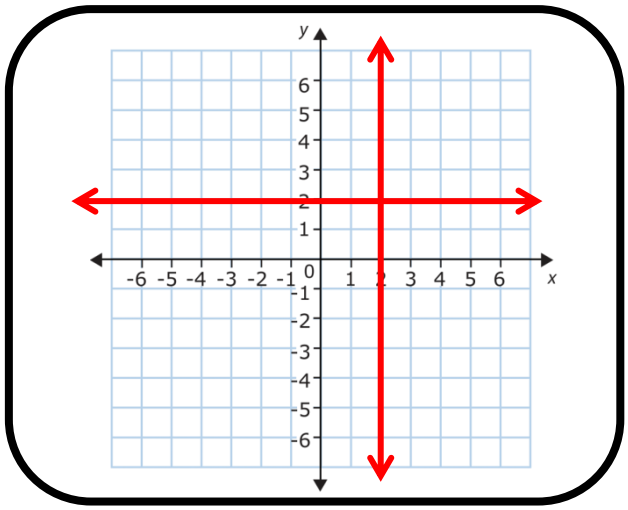
$m = \frac{1}{2}$ $m = \frac{2}{1}$

OPPOSITE

Positive and Negative

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

New Slope: $-\frac{2}{1}$



$y = 2x + 3$

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

NEW SLOPE

The SLOPE of a perpendicular line is FLIPPED and OPPOSITE!!!

Write an Equation for a Parallel Line Example

Original Equation:

$$y = 3x + 2$$

Parallel Equation:

Find the Equation of a Parallel Line that passes through the coordinate (practice)

$y=2x-8$ (3,10)	$y=-2x-1$ (4,3)
$y=\frac{1}{3}x-1$ (6,3)	$y=\frac{1}{2}x+2$ (0,4)

Find the Equation of a Parallel Line that passes through the coordinate

Step 1: Convert the Equations to slope intercept form

$3x-4y=-4 \quad (2,2)$	$3y=-2x+6 \quad (2,2)$

Parallel Lines Practice

y=2/3x-1 (3,3)	y=x+5 (8,1)
y=-2x-1 (4,3)	6x+y=4 (-2,3)

Write an Equation for a Perpendicular Line Example

Find an Equation for a Perpendicular Line that Passes through the coordinate (Practice)

(3 , -4) and $y = -x + 2$	(-2 , -4) and $y = -\frac{3}{4}x + 4$

Perp. Line Practice Cont.

Step 1: Convert to Slope Intercept Form

(-2 , -1) and -6x + 4y = -12	(3 , -2) and -5x + 3y = -9

Perp. Line Practice Cont.

(-2 , 1) and $-x + 2y = -20$	(4 , 4) and $y = \frac{8}{3}x - 5$

Perp. Line Practice Cont.

(4 , -3) and $x + y = 8$	(2 , 5) and $y = 2x - 2$