## 5.5: Write Equations of Parallel and Perpendicular Lines

Goals: \*Write an equation in slope – intercept of parallel lines \*Write an equation in slope – intercept form of perpendicular lines

Parallel Lines: lines that never intersect

Symbol:

Parallel lines have the same slope

## Write the equation of the line with the given information:

**Ex:** passes through  $(-3, -5) \mid |$  to y = 3x - 1

<u>Given Equation</u>	Answer Equation
What information do you know from the given equation?	What information can you infer about the answer equation as a result?
The given line has a slope of 3	The answer line will also have a slope of 3 since they are parallel. y = mx + h
	-5 = 3(-3) + b
	-5 = -9 + b $+9 + 9$ $4 = b$
	y = 3x + 4
<b>Ev.</b> passes through $(-2, 11) \mid 1$ to $y = -r + 5$	

**Ex:** passes through (-2, 11) | to y = -x + 5

$$y = -x + 9$$

**Ex:** passes through (-3, 3) | to y + 2x = 1

$$y = -2x - 3$$

Determine which lines, if any, ar 1.	e parallel:	
<b>a.</b> $y = 5x - 3$	<b>b.</b> $x + 5y = 2$	<b>c.</b> $-10y - 2x = 0$
m = 5	$m = -\frac{1}{5}$	$m = -\frac{1}{5}$
b    c		
<b>2. a.</b> $y = -3x + 1$	<b>b.</b> $-x + 3y = 1$	<b>c.</b> $2x - 6y = 4$
m = -3	$m = \frac{1}{3}$	$m=\frac{1}{3}$
b    c		
3. $2x + 6x - 3$	<b>b</b> <i>n</i> = 2 <i>r</i> = 8	a = 15x + 45x - 6
<b>a.</b> $2x + 0y = -3$	$\mathbf{D} \cdot \mathbf{y} = 3\mathbf{x} - 6$	<b>c.</b> $-1.5y + 4.5x = 0$
$m==-\frac{1}{3}$	m = 3	m = 3

b || c