PARALLEL LINES HAVE THE:

SAME   SLOPE

SLOPE INTERCEPT FORM: $y = mx + b$

(0,b)

You must have a **Slope** and a **y-int**.

POINT SLOPE FORM: $y - y_1 = m(x - x_1)$

You must have a **Slope** and a **Point**.

Aug 22-1:07 PM

EXAMPLES:

State the slope of the parallel line in each of the following equations.

A) $y = 2x - 8$	B) $2x - 8y = 16$	C) Line that goes through pts:
		$(2, 1)$ & $(9, 7)$

A) $y = 2x - 8$

$$\frac{L_1}{2} \parallel \frac{L_2}{2}$$

B) $2x - 8y = 16$

$-2x \qquad -2x$

$$\frac{-8y}{-8} = \frac{-2x}{-8} + \frac{16}{-8}$$

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

$$\frac{L_1}{\frac{1}{4}} \parallel \frac{L_2}{\frac{1}{4}}$$

C) Line that goes through pts: $(2, 1)$ & $(9, 7)$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 1}{9 - 2} = \frac{6}{7}$$

$$\frac{L_1}{6/7} \parallel \frac{L_2}{6/7}$$

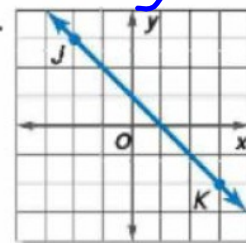Example #1: Find the equation of the line that is parallel to the given line, but also passes through (3,3).

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

$$\cancel{y = mx + b}$$

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

$$y - 3 = -1(x - 3)$$

$$y - 3 = -1x + 3$$
$$\quad +3 \qquad \quad +3$$

$$\boxed{y = -1x + 6}$$

Example #2 *Find the equation of the line parallel to*
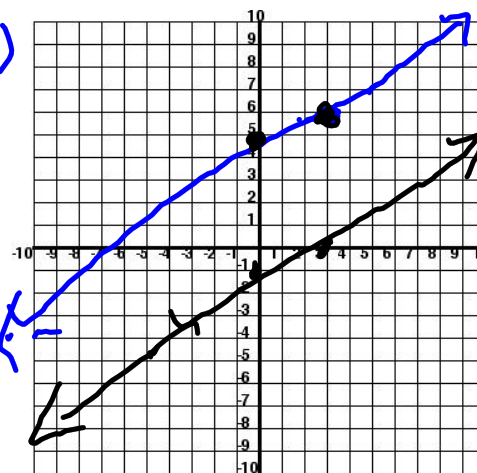$y = 1/3x - 1$ *and passes through the point* $(3, 6)$. *Graph the parallel line.*

$y = mx + b$ $y - y_1 = m(x - x_1)$

$y - 6 = \frac{1}{3}(x - 3)$

$y - 6 = \frac{1}{3}x - 1$
$+6 \phantom{= \frac{1}{3}x} +6$

$y = \frac{1}{3}x + 5$

Example #3 *Find the equation of the line parallel to* $6x - 3y = 12$ *and passes through the point* $(0, 6)$. *Write the equation in Standard form.*

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

$$y - 6 = 2(x - 0)$$

$$y - 6 = 2x - 0$$

$+6 \qquad\qquad +6$

$$y = 2x + 6$$

$$6x - 3y = 12$$

$-6x \qquad\qquad -6x$

$$\frac{-3y}{-3} = \frac{-6x}{-3} + \frac{12}{-3}$$

$$y = 2x - 4$$