

### 3.5 Write & Graph Lines

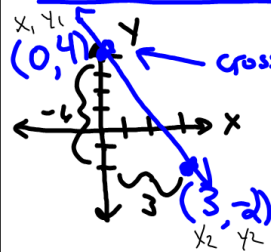
#### Slope-Intercept Form

$$y = mx + b$$

m is slope (directions)

b is the y-intercept  
(Starting point)  
on y-axis

#### Write in S.I. if given y-intercept



$$y = mx + b$$

\* need the m & b

$$m = \frac{-6}{3} = -2 \quad \left\} \quad m = \frac{4 + 2}{0 - 3} = \frac{6}{-3} = -2$$

$$b = 4$$

$$y = -2x + 4$$

\* Can find b by Substitution

$$m = -2$$

$$y = -2x + b \quad \left\{ \begin{array}{l} \text{plug in } (3, -2) \\ \text{for } x \text{ \& } y \end{array} \right.$$

$$-2 = -2(3) + b$$

$$-2 = -6 + b$$

$$4 = b \quad \left\{ \begin{array}{l} m = -2 \end{array} \right.$$

$$y = mx + b \rightarrow y = -2x + 4$$

## Example

Write equation of line thru  $(-1, 3)$  with  
Slope of 2.

$$\begin{matrix} x & y \\ (-1, & 3) \end{matrix} \quad m=2$$

$$3 = 2(-1) + b$$

$$\begin{array}{r} 3 = -2 + b \\ +2 \quad +2 \end{array}$$

$$5 = b \quad \rightsquigarrow$$

$$y = 2x + 5$$

