

3.3.16: Convert from Standard Form to Slope-Intercept Form  
 Rewrite so that y is a function of x.

$Ax + By = C$   
 $y = mx + b$   
 $y =$

$$\begin{array}{r} -6x + y = 9 \\ +6x \quad +6x \\ \hline y = 6x + 9 \end{array}$$

$$\begin{array}{r} 2y + 6x = 16 \\ +6x \quad +6x \\ \hline 2y = 6x + 16 \\ \frac{2y}{2} = \frac{6x}{2} + \frac{16}{2} \\ y = 3x + 8 \end{array}$$

$$\begin{array}{r} 10x + 5y = 30 \\ -10x \quad -10x \\ \hline -5y = -10x + 30 \\ \frac{-5y}{-5} = \frac{-10x}{-5} + \frac{30}{-5} \\ y = 2x - 6 \end{array}$$

$$\begin{array}{r} -2x + 4y = 14 \\ y = .5x + 3.5 \\ y = \frac{1}{2}x + 3\frac{1}{2} \end{array}$$

Convert from Slope-Intercept Form to Standard Form

$y = mx + b$   
 $Ax + By = C$   
 A is positive  
 No fractions/decimals

$$\begin{array}{r} y = -3x + 9 \\ +3x \quad +3x \\ \hline 3x + y = 9 \end{array}$$

$$\begin{array}{r} y = 2x + 7 \\ -2x \quad -2x \\ \hline -2x + y = 7 \\ -1 \quad -1 \quad -1 \\ \hline 2x - y = 7 \\ y = \frac{3}{4}x + 1 \\ -3/4x \quad -3/4x \\ \hline -3/4x + y = 1 \\ \cdot 4 \quad \cdot 4 \quad \cdot 4 \\ \hline 3x - 4y = 4 \end{array}$$

$$\begin{array}{r} y = \frac{-1}{2}x + 4 \\ +\frac{1}{2}x \quad +\frac{1}{2}x \\ \hline \frac{1}{2}x + y = 4 \\ \cdot 2 \quad \cdot 2 \quad \cdot 2 \\ \hline x + 2y = 8 \end{array}$$

$$\begin{array}{r} -3/4x + y = 1 \\ \cdot 4 \quad \cdot 4 \quad \cdot 4 \\ \hline 3x - 4y = 4 \end{array}$$

Which equations are equivalent to  $4x + 8y = 24$ ?

$8x + 16y = 48$

$-x - 2y = -6$

$2(4x + 8y = 24)$

$x + 2y = 6$

$2x + 4y = 12$   
 $\frac{1}{2}(4x + 8y = 24)$

$\frac{1}{2}x + y = 3$

$-4x - 8y = -24$   
 $-1(4x + 8y = 24)$

$\frac{4x}{8} + \frac{8y}{8} = \frac{24}{8}$   
 Any others??

Standard Form:  
 $Ax + By = C$

Slope-Intercept Form:  
 $y = mx + b$