

Key Concept: Linear Equations in Standard Form

Rule 1: **A, B, and C** must be _____, **no fractions.**

Rule 2: **A cannot be** _____.

Quick Reference:**Slope-Intercept Form****Point Slope Form****Standard Form****Example 5: Change to Standard Form**

Write each equation in standard form.

a) $y = 4x - 9$

c) $y = \frac{5}{3}x - 1$

b) $y - 1 = -\frac{2}{5}(x + 3)$

d) $y - 6 = -2(x + 7)$

Example 6: Standard Form Given Two Points

Write an equation in standard form for the line that passes through the points.

a) $(8, -4)$ and $(-6, -11)$

b) $(-1, 3)$ and $(2, -3)$

Key Concept: Writing Equations of Lines Parallel or Perpendicular to a Given Line.

Step 1: Identify the slope of the given line and find the parallel (same) or perpendicular (opposite-reciprocal) slope.

Step 2: Use the point-slope form to find the equation of the line through the given point with the needed slope.

Step 3: Rewrite the equation in the needed form.

Example 7: Parallel Line Through a Given Point

- a) Write each equation in slope intercept form for the line that passes through **(-4, 2)** and is **parallel** to the graph of **$y = 3x - 5$** .
- b) Write each equation in slope intercept form for the line that passes through **(8, 2)** and is **parallel** to the graph of **$y = \frac{1}{2}x + 1$** .

Example 8: Perpendicular Line Through a Given Point

- a) Write each equation in slope intercept form for the line that passes through **(1, -2)** and is **perpendicular** to the graph of **$3x + 2y = 12$** .

m	$\parallel m$	$\perp m$
-2		
	$-\frac{3}{5}$	
		$\frac{7}{2}$
$\frac{5}{9}$		

- b) Write each equation in slope intercept form for the line that passes through **(3, -1)** and is **perpendicular** to the graph of **$5x - 2y = 12$** .