

5.4: Write Equations in Standard Form

Study Guide

Write Equivalent Equations in Standard Form:

Ex: Write two equivalent equations for the equation below:

$$2x + y = 3$$

$$4x + 2y = 6$$

$$6x + 3y = 9$$

Additional answers are possible

Ex: Adjust the equation below to meet the criteria to be in standard form:

$$-\frac{2}{3}x + 4y = -3$$

Since A is both negative and a fraction, you must multiply the entire equation by -3 to change both.

$$2x + -12y = 9$$

Write the equation in standard form using the given information:

Ex: $m = 3$, passes through $(2, 1)$

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

1. Find b in $y = mx + b$

$$1 = 6 + b$$

$$\underline{-6} \quad \underline{-6}$$

$$-5 = b$$

$$y = 3x - 5$$

2. Write equation in $y = mx + b$

$$\underline{-3x} \quad \underline{-3x}$$

$$-3x + y = -5$$

3. Move x over

$$3x - y = 5$$

4. Multiply by -1 to make A positive

Ex: passes through $(4, 7)$ and $(2, 8)$

$$\frac{8-7}{2-4} = -\frac{1}{2}$$

1. Find slope

$$7 = -\frac{1}{2}(4) + b$$

2. Find b in $y = mx + b$

$$7 = -2 + b$$

$$9 = b$$

$$y = -\frac{1}{2}x + 9$$

3. Write equation in $y = mx + b$

$$\underline{+\frac{1}{2}x} \quad \underline{+\frac{1}{2}x}$$

$$\frac{1}{2}x + y = 9$$

3. Move x over

$$x + 2y = 18$$

4. Multiply by 2 to get rid of fractions.

