Solving Equations in the Form ax + b = c

In equations of the form $ax + b = c$ (read as "*a* times *x* plus *b* equals *c*"), *x* is a variable which represents an unknown quantity and *a*, *b* and *c* are constants.

EXAMPLES: $ax + b = c$

$3x + 4 = 10$

$-5y - 12 = 18$

$\frac{3}{4}m + 2 = 3$

Our goal in solving these equations is to simplify the equation to the point where we have a variable equal to a constant.These equations will require us to use both the Addition Property of Equations and the Multiplication Property of Equations.

EXAMPLE: Solve:

$$3x + 4 = 10$$

$$3x + 4 - 4 = 10 - 4$$

$$3x = 6$$

$$\frac{3}{3}x = \frac{6}{3}$$

$$x = 2$$

CHECK: $3x + 4 = 10$; x=2

$$3(2) + 4 = 10$$

$$6 + 4 = 10$$

$$10 = 10$$

EXAMPLE: Solve:

$$\frac{3}{4}m + 2 = 3$$

$$\frac{3}{4}m + 2 - 2 = 3 - 2$$

$$\frac{3}{4}m = 1$$

$$\frac{4}{3} * \frac{3}{4}m = 1 * \frac{4}{3}$$

$$\frac{12}{12}m = \frac{4}{3}$$

$$m = \frac{4}{3}$$