One-Step Equations

I. Goal
   A. Solving what the variable is.
   B. Via inverse operations.

II. Inverse Operations
   A. Addition = Subtraction
   B. Subtraction = Addition
   C. Multiplication = Division
   D. Division = Multiplication

ex: Start on the variable side.

$x - 7 = -9$

$+7 \quad +7$

$x = -2$

$\therefore +3 = 7$

ex: Simplify the double negative

$-10 = y \quad -(-6)$

$-10 = y \quad +6$

$-6 \quad -6$

$-16 = y$

III. Multiplication & Division

$4x$ or $-3y$

$4 \cdot x$ or $-3 \cdot y$

$\frac{x}{4}$ or $\frac{y}{-3}$

$x \div 4$ or $y \div -3$

ex: $\frac{7g}{7} = \frac{42}{-7}$ (Start)

$g = -6$

$\therefore$

ex: $\frac{m}{-5} = -20$ (Start) $\cdot(-5)$

$m = 100$

IV. A Negative Sign in Front of Variable

ex: $-a = -3$

$\frac{-1a}{-1} = \frac{3}{-1}$

$a = -3$

ex: $-b = +4$

$\frac{-1b}{-1} = \frac{-4}{-1}$

$b = 4$

II. Fraction Coefficients

A. when dividing by a fraction, you are really multiplying by the #'s reciprocal.

For example: $\frac{1}{8}x = 4$

$x = 4 \cdot 8$

$x = 32$

or: $-\frac{1}{3}x = 6$

$x = 6 \cdot (-3)$

$x = -18$