Algebra 1 ECA Remediation Lesson 3

Solving Complex Linear Equations

Steps to follow...

1. Simplifying the left and right side of the equation as two separate expressions.
2. Move the variables to the same side of the equal sign, using opposite operations.
   Suggestion: move the variable with the smaller coefficient
3. Move all numbers away from the variable.
   a. Take care of addition and subtraction first
   b. Take care of multiplication and division second

Opposite Operations

1. Addition ↔ Subtraction
2. Multiplication ↔ Division

Remember:

x ↔ 1x
−x ↔ −1x

Solve each Equation (Proportions)

1. $\frac{x}{5} = \frac{2x-6}{15}$

$15(x) = 5(2x-6)$
$15x = 10x - 30$
$-10x \quad -10x$
$5x = -30$

$\frac{5x}{5} = \frac{-30}{5}$
$x = -6$

2. $\frac{2x-1}{7} = \frac{x+4}{3}$

$3(2x-1) = 7(x+4)$
$6x - 3 = 7x + 28$
$-6x \quad -6x$
$-3 = x + 28$

$-3 = x + 28$
$-28 \quad -28$
$-31 = x$

Solve each Equation for the given Variable. (Literal Equations)

3. $6x + 10y = 25$, solve for y

$-6x \quad -6x$
$\frac{10y}{10} = \frac{-6x+25}{10}$
$y = \frac{-6x+25}{10}$

4. $A = \frac{1}{2}h(b_1 + b_2)$, solve for h

$(2)\ A = \frac{1}{2}h(b_1+b_2)\ (2)$
$\frac{2A}{(b_1+b_2)} = \frac{h(b_1+b_2)}{(b_1+b_2)}$
$\frac{2A}{(b_1+b_2)} = h$

5. $V = \pi r^2 h$, solve for h

$\frac{V}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$
$\frac{V}{\pi r^2} = h$