1.2 Solving Multi-step Equations

Steps

① Distribute, if necessary.

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② Clear fractions, if necessary.

Multiply by the LCD to EVERY term.

③ Combine like terms on the same side of the = sign.

④ Undo variables so they are on the same side, if necessary.

⑤ Isolate the variable (term) by +/− constants.

↑ a # by itself.

⑥ Divide or Multiply to undo the coefficient.

EX: $\frac{1}{2}(40m + 10) = 15$

$20m + 5 = 15$

$-5 \quad -5$

$\frac{20m}{20} = \frac{10}{20}$

$m = \frac{1}{2}$

EX: $6 \cdot \frac{1}{2}x + \frac{5}{3} \cdot 6 = 9 \cdot 6$ LCD: 6

$\frac{6 \cdot 1}{2} = \frac{6}{2} = 3$

$\frac{5}{3} \cdot 6 = \frac{30}{3} = 10$

$3x + 10 = 54$

$-10 \quad -10$

Note: terms are separated by +/−/=

$\frac{3x}{3} = \frac{44}{3}$

$x = \frac{44}{3}$

Ex: $2(5y - 6) = 3y + 4$

$10y - 12 = 3y + 4$

$-3y \qquad\qquad -3y$

$7y - 12 = 4$

$+12 \qquad +12$

$\frac{7y}{7} = \frac{16}{7}$

$y = \frac{16}{7}$