

Multi-Step Equations ^{Key}

- ✓ Combine any like terms on the left side of the equation.
- ✓ Combine any like terms on the right side of the equation.
- ✓ Bring all variables to the left side of the equation.
- ✓ Bring all numbers to the right side of the equation.
- ✓ Solve as usual.

Examples... Solve each equation algebraically using the steps above!

$$2w + 8w - 24 = 6 - 6w + 2$$

$$\begin{array}{rcl} 10w - 24 & = & 8 - 6w \\ + 6w & & + 6w \end{array}$$

$$\begin{array}{rcl} 16w - 24 & = & 8 \\ + 24 & & + 24 \end{array}$$

$$\begin{array}{rcl} 16w & = & 32 \\ \cancel{16} & & \cancel{16} \end{array}$$

$$w = 8$$

$$7x - 3x - 2 = 5 + x + 2$$

$$\begin{array}{r} 4x - 2 = 7 + x \\ -x \quad \quad -x \end{array}$$

$$\begin{array}{r} 3x - 2 = 7 \\ +2 \quad +2 \end{array}$$

$$\begin{array}{r} 3x = 9 \\ \hline 3 \quad 3 \end{array}$$

$$x = 3$$

$$-8 + 6x + -7 = 3x + 1 + x$$

$$\begin{array}{r} -15 + 6x = 4x + 1 \\ -4x \quad -4x \end{array}$$

$$\begin{array}{r} -15 + 2x = 1 \\ +15 \quad +15 \end{array}$$

$$\begin{array}{r} 2x = 16 \\ \hline 2 \quad 2 \end{array}$$

$$x = 8$$

$$5(x - 8) = -2x + 9$$

$$\begin{array}{r} 5x - 40 = -2x + 9 \\ +2x \quad +2x \end{array}$$

$$\begin{array}{r} 7x - 40 = 9 \\ +40 \quad +40 \end{array}$$

$$\begin{array}{r} 7x = 49 \\ \hline 7 \quad 7 \end{array}$$

$$x = 7$$