

Multi-Step Equations
anything goes

1. $4x - 3 + 2x = 8x - 3 - x$

$$\begin{array}{r} 6x - 3 = 7x - 3 \\ -6x \quad -6x \\ \hline -3 = 1x - 3 \\ +3 \quad +3 \\ \hline 0 = x \end{array}$$

2. $8y + 6 - 12y = 2y + 9 - 3y$

$$\begin{array}{r} -4y + 6 = -1y + 9 \\ +4y \quad +4y \\ \hline 6 = 3y + 9 \\ -9 \quad -9 \\ \hline -3 = 3y \\ \frac{-3}{3} = \frac{3y}{3} \\ -1 = y \end{array}$$

$$\begin{array}{r} 8y + 6 - 12y = 2y + 9 - 3y \\ +12y \quad +12y \\ \hline 8y + 6 = 14y + 9 - 3y \\ +3y \quad +3y \\ \hline 11y + 6 = 14y + 9 \\ -11y \quad -11y \\ \hline 6 = 3y + 9 \\ -9 \quad -9 \\ \hline -3 = 3y \\ \frac{-3}{3} = \frac{3y}{3} \\ -1 = y \end{array}$$

$y = -1$

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3. $9(w-4) - 7w = 5(3w-2)$

$$9w - 36 - 7w = 15w - 10$$

$$\begin{array}{r} 2w - 36 = 15w - 10 \\ -2w \quad \quad -2w \\ \hline -36 = 13w - 10 \\ +10 \quad \quad +10 \\ \hline \end{array}$$

$$\frac{-26}{13} = \frac{13w}{13}$$

$$-2 = w$$

4) $5 - 3(x-7) = 2(2-x) - 8$

$$5 - 3x + 21 = 4 - 2x - 8$$

$$\begin{array}{r} 5 - 3x + 21 = 4 - 8 \\ 26 - 3x = -4 \\ -26 \quad \quad -26 \\ \hline \end{array}$$

$$-3x = -30$$

$$\frac{-3x}{-3} = \frac{-30}{-3}$$

$$x = 10$$