Nov 18th

Multi-Step Equations

you have to make sure each expression is completely simplified before you start solving

$-3(4x - 8 + 9x) = -10$

$-3(-5x - 8) = -10$

$15x + 24 = -10$

$-24 \quad -24$

$\frac{15x}{15} = \frac{-34}{15}$

$x = -2\frac{4}{15}$

option 1

$$\frac{-(-6x+8-2x)}{2}=-3$$

$$\frac{-(-8x+8)}{2}=-3$$

$$\frac{8x-8}{2}\div -3(2)$$

$$8x-8=-6$$
$$+8\quad +8$$

$$\frac{8x}{8}=\frac{2}{8}\div\frac{2}{2}$$

$$\boxed{x=\frac{1}{4}}$$

option 2

$$\frac{-(-6x+8(2x)}{2}=-3$$

$$\frac{-(-8x+8)}{2}=-3$$

$$\frac{8x-8}{2}=\frac{-3}{1}$$

create a proportion + solve using cross products

$$-6=8x-8$$
$$+8\quad +8$$

$$2\div 2=\frac{8x}{8}$$
$$2\div 8$$

$$\boxed{\frac{1}{4}=x}$$

* Remember when we check it goes in the original equation!

$$\frac{-(-6(\frac{1}{4})+8-2(\frac{1}{4}))}{2}=-3$$

$$\frac{-(-\frac{6}{4}+8-2(\frac{1}{4}))}{2}=-3$$

$$\frac{-(-1\frac{1}{2}+8-\frac{2}{4})}{2}=-3$$

$$\frac{-(6\frac{1}{2}-\frac{1}{2})}{2}=-3$$

Option 3

$$\frac{-((-6x)+8(-2x))}{2}=-3$$

$$\frac{-(-8x+8)}{2}=-3$$

$$\frac{8x-8}{2}=-3$$ actually do the division

$$\frac{8x}{2}-\frac{8}{2}=-3$$

$$4x-4=-3$$
$$+4 \quad +4$$

$$\frac{4x}{4}=\frac{1}{4}$$

$$\boxed{x=\frac{1}{4}}$$

$$\frac{-(6)}{2}=-3$$

$$-\frac{6}{2}=-3$$

$$-3=-3$$

option 1

$$-10 = \frac{-3(8x+4-10x)}{-8+2}$$

$$-10 = \frac{-3(-2x+4)}{-8+2}$$

$$-10 = \frac{6x-12}{-8+2}$$

$$-10(-6) = \frac{6x-12}{-6}(-6)$$

$$60 = 6x-12$$
$$+12 \qquad +12$$

$$\frac{72}{6} = \frac{6x}{6}$$

$$\boxed{12 = x}$$

option 2

$$-10 = \frac{-3(8x+4-10x)}{-8+2}$$

$$-10 = \frac{-3(-2x+4)}{-8+2}$$

$$-10 = \frac{6x-12}{-8+2}$$

$$\frac{-10}{1} = \frac{6x-12}{-6}$$

$$60 = 6x-12$$
$$+12 \qquad +12$$

$$\frac{72}{6} = \frac{6x}{6}$$

$$\boxed{12 = x}$$

option 3

$$-10 = \frac{-3(8x+4-10x)}{-8+2}$$

$$-10 = \frac{-3(-2x+4)}{-8+2}$$

$$(-6)-10 = \frac{-3(-2x+4)}{-6}\left(\frac{-6}{1}\right)$$

$$\frac{60}{-3} = \frac{-3(-2x+4)}{-3}$$

instead of distributing why not just divide

$$\frac{-20}{-4} = \frac{-2x+4}{-4}$$

$$\frac{-24}{-2} = \frac{-2x}{-2}$$

$$\boxed{12 = x}$$