

Please have your homework on your desk. Calculator? Yes!

DATE:

TSW solve multi-step equations.

QRQ2:

Simplify $5(x-11) - 2(x+13)$

$$\begin{array}{r} 5x - 55 - 2x - 26 \\ \hline 3x - 81 \end{array}$$

Evaluate $-a^2 - b^2 + c$ when $a = -2$, $b = 4$ and $c = -9$

$$\begin{array}{r} -(-2)^2 - (4)^2 + (-9) \\ -(4) - (16) - 9 \\ -4 - 16 - 9 \\ \hline -29 \end{array}$$

HW

① $0 = 4 + \frac{n}{5}$

$$\begin{array}{r} -4 \quad -4 \\ \hline 5 \cdot -4 = \frac{n}{5} \cdot 5 \\ \hline -20 = n \\ \text{then } n = -20 \end{array}$$

② $-1 = \frac{5+x}{6}$

$$\begin{array}{r} 6 \cdot -1 = \frac{5+x}{6} \cdot 6 \\ \hline -6 = 5+x \\ -5 \quad -5 \\ \hline \text{If } -11 = x \\ \text{then } x = -11 \end{array}$$

~~$$\begin{array}{r} -1 = \frac{5+x}{6} \\ \hline -6 = 5+x \\ -5 \quad -5 \\ \hline -11 = x \end{array}$$~~

Solve Multi-Step Equations

Notes:

Solve each equation.

Ex1 $-30 = -3x - 2x$

$$\begin{array}{r} -30 = -5x \\ -5 \quad -5 \\ \hline \text{If } 6 = x \\ \text{then } x = 6 \end{array}$$

Now You Try!

Solve each equation

1 $-25 = -10x + 5x$

$$\begin{array}{r} -25 = -5x \\ -5 \quad -5 \\ \hline \text{If } 5 = x \\ \text{then } x = 5 \end{array}$$

Ex2 $5m - 7 = 5m$

$$\begin{array}{r} 5m - 7 = 5m \\ -5m \quad -5m \\ \hline -7 = 0m \\ \hline -7 = 0 \\ \text{Not True! No Solution!} \end{array}$$

2 $6m = 6m + 1$

$$\begin{array}{r} 6m = 6m + 1 \\ -6m \quad -6m \\ \hline 0m = 1 \\ \hline 0 \neq 1 \\ \text{No Solution} \end{array}$$

Ex3 $16 = -(p - 6)$

$$\begin{array}{r} 16 = -p + 6 \\ -6 \quad -6 \\ \hline 10 = -p \\ -1 \quad -1 \\ \hline \text{If } -10 = p \\ \text{then } p = -10 \end{array}$$

3 $-(x + 3) = 20$

$$\begin{array}{r} -(x + 3) = 20 \\ -x - 3 = 20 \\ +3 \quad +3 \\ \hline -x = 23 \\ -1 \quad -1 \\ \hline x = -23 \end{array}$$

Ex4 $8m - 3 = 6m + 7$

$$\begin{array}{r} 8m - 3 = 6m + 7 \\ -6m \quad -6m \\ \hline 2m - 3 = 7 \\ +3 \quad +3 \\ \hline 2m = 10 \\ \frac{2m}{2} = \frac{10}{2} \\ m = 5 \end{array}$$

4 $9x + 1 = 4x - 19$

$$\begin{array}{r} 9x + 1 = 4x - 19 \\ -4x \quad -4x \\ \hline 5x + 1 = -19 \\ -1 \quad -1 \\ \hline 5x = -20 \\ \frac{5x}{5} = \frac{-20}{5} \\ x = -4 \end{array}$$

Ex5 $-16 + 6k = 2(2 + k)$ 5 $4(g + 2) = -14 + 6g$

$$\begin{array}{r} -16 + 6k = 4 + 2k \\ \underline{-2k \quad -2k} \\ -16 + 4k = 4 \\ \underline{+16 \quad +16} \\ 4k = 20 \\ \underline{\quad \quad 4 \quad 4} \\ k = 5 \end{array}$$

$$\begin{array}{r} 4g + 8 = -14 + 6g \\ \underline{-4g \quad -4g} \\ 8 = -14 + 2g \\ \underline{+14 \quad +14} \\ 22 = 2g \\ \underline{\quad \quad 2 \quad 2} \\ 11 = g \\ \text{then } g = 11 \end{array}$$

Ex6 $2(x - 3) = 3(x + 6)$ 6 $-8(x + 1) = -(-1 - x)$

$$\begin{array}{r} 2x - 6 = 3x + 18 \\ \underline{-2x \quad -2x} \\ -6 = x + 18 \\ \underline{-18 \quad -18} \\ -24 = x \\ \text{then } x = -24 \end{array}$$

$$\begin{array}{r} -8x - 8 = 1 + x \\ \underline{-x \quad -x} \\ -9x - 8 = 1 \\ \underline{\quad \quad +8 \quad +8} \\ -9x = 9 \\ \underline{\quad \quad -9 \quad -9} \\ x = -1 \end{array}$$

Ex7 $-2(a - 1) = -3(a + 7)$ 7 $-4(b + 5) = 6(b - 3)$

$$\begin{array}{r} -2a + 2 = -3a - 21 \\ \underline{+3a \quad +3a} \\ a + 2 = -21 \\ \underline{\quad \quad -2 \quad -2} \\ a = -23 \end{array}$$

$$\begin{array}{r} -4b - 20 = 6b - 18 \\ \underline{-6b \quad -6b} \\ -10b - 20 = -18 \\ \underline{\quad \quad +20 \quad +20} \\ -10b = 2 \\ \underline{\quad \quad -10 \quad -10} \\ b = -\frac{1}{5} \end{array}$$

Ex8 $-5(x + 8) = 7(x - 4)$ 8 $9(2x + 3) = -6(x + 2)$

$$\begin{array}{r} -5x - 40 = 7x - 28 \\ \underline{+5x \quad +5x} \\ -40 = 12x - 28 \\ \underline{+28 \quad +28} \\ -12 = 12x \\ \underline{\quad \quad 12 \quad 12} \\ -1 = x \end{array}$$

$$\begin{array}{r} 18x + 27 = -6x - 12 \\ \underline{+6x \quad +6x} \\ 24x + 27 = -12 \\ \underline{\quad \quad -27 \quad -27} \\ 24x = -39 \\ \underline{\quad \quad 24 \quad 24} \\ x = \frac{-39}{24} = -\frac{13}{8} \end{array}$$

Ex9 An equation is solved as shown.
Between which two steps is an error made?
Explain the error.

$$\begin{array}{l} -9(x - 1) = 3(x + 9) \\ -9x - 9 = 3x + 27 \\ -9 = 12x + 27 \\ -36 = 12x \\ -3 = x \end{array}$$

should be +

9 An equation is solved as shown.
Between which two steps is an error made?
Explain the error.

$$\begin{array}{l} -4(x + 7) = 2(x - 4) \\ -4x - 28 = 2x - 8 \\ -28 = -2x - 8 \\ -20 = -2x \\ 10 = x \end{array}$$