

Warm Up

8/29/18

Simplify:

1. $-12(x + 5) - (3x + 9)$

$$\begin{array}{r} -12(x+5) - 3x - 9 \\ \hline -12x - 60 - 3x - 9 \\ \hline -15x - 69 \end{array}$$

2. $-5 + 18 - 4$

$$\begin{array}{r} 13 - 4 \\ \hline 9 \end{array}$$

3. $-8(9)$

$$\boxed{-72}$$

Solve:

4. $-5(x + 2) = -40$

$$\begin{array}{r} -5x - 10 = -40 \\ \hline +10 \quad +10 \\ \hline -5x = -30 \\ \hline -5 \quad -5 \\ \hline x = 6 \end{array}$$

$$-5(6 + 2) = -40$$

$$-5(8) = -40$$

5. $8y + 3 = -3y - 4 + 11y$

$$\begin{array}{r} 8y + 3 = 8y - 4 \\ \hline -3 \quad -3 \\ \hline 8y = 8y - 7 \\ \hline -8y \quad -8y \\ \hline 0 = -7 \end{array}$$

No Solution

\emptyset

No Solution:	Infinite Solution:
$-4(2x + 1) = -8x - 2$ $\begin{array}{r} \cancel{-8x} - 4 = \cancel{-8x} - 2 \\ +8x \quad +8x \\ \hline -4 = -2 \\ \emptyset \end{array}$	$-5 - 9x = 3(1 - 3x) - 8$ $\begin{array}{r} -5 - 9x = 3 - 9x - 8 \\ -5 - 9x = -5 - 9x \\ +9x \quad +9x \\ \hline -5 = -5 \\ \infty \end{array}$
There is no possible number that could work as a solution to the equation!	Every number could work as a solution!

MORE EXAMPLES!

1

$$3(2x + 2) - 3x = 6 + 3x$$

$$\begin{array}{r} 6x + 6 - 3x = 6 + 3x \\ 3x + 6 = 6 + 3x \\ \hline \infty \end{array}$$

2

$$6(2x - 6) = -7(-2x + 4)$$

$$\begin{array}{r} 12x - 36 = 14x - 28 \\ -14x \quad -14x \\ \hline -2x - 36 = -28 \\ +36 \quad +36 \\ \hline -2x = 8 \\ \frac{-2x}{-2} = \frac{8}{-2} \quad \boxed{x = -4} \end{array}$$

3

$$8(5x - 3) = 6(-3x - 4)$$

$$\begin{array}{r} 40x - 24 = -18x - 24 \\ +18x \quad +18x \\ \hline 58x - 24 = -24 \\ +24 \quad +24 \\ \hline 58x = 0 \\ \frac{58x}{58} = \frac{0}{58} \\ \boxed{x = 0} \end{array}$$

4

$$3x - 13 = 7(x + 2) - 4(x - 7)$$

$$\begin{array}{r} 3x - 13 = 7x + 14 - 4x + 28 \\ -3x \quad -3x \\ \hline -13 = 42 \\ \emptyset \end{array}$$

**Clearing
Fractions
in
equations**

Fractions in Equations

To Solve:

Multiply each term by a common denominator

$$\cancel{(4)} \frac{5x}{\cancel{4}} + \overset{(4)}{2} = \overset{(4)}{\cancel{x}} + 7 \overset{(4)}{\cancel{4}}$$

$$\begin{array}{r} 5x + 8 = \cancel{x} + 28 \\ -x \qquad \qquad \qquad -\cancel{x} \\ \hline 4x + 8 = 28 \\ \qquad -8 \qquad \qquad -8 \\ \hline 4x = 20 \\ \frac{4x}{4} = \frac{20}{4} \\ \boxed{x=5} \end{array}$$

$$\frac{\overset{7}{\cancel{14}}x}{\underset{1}{\cancel{2}}} - 3 = \overset{14}{7}x + 2 \overset{14}{2}$$

$$7x - 42 = \cancel{2x} + 28$$
$$\begin{array}{r} -2x \\ \hline \end{array}$$

$$5x - \cancel{42} = 28$$

$$\begin{array}{r} +42 \quad +42 \\ \hline \end{array}$$

$$\frac{5x}{5} = \frac{70}{5}$$

$$\boxed{x=14}$$

$$(10) \frac{x}{5} + 7 = \frac{x}{10} + 8 \quad (10)$$

$$\begin{array}{r} 2x + 70 = x + 80 \\ -x \qquad \qquad -x \\ \hline x + 70 = 80 \\ -70 \quad -70 \\ \hline x = 10 \end{array}$$

$$(6) \frac{2x + 12}{3} = \frac{5x - 10}{2}$$

$$4x + 72 = 15x - 60$$

$-15x$

$-15x$

$$-11x + 72 = -60$$

-72

-72

$$\frac{-11x}{-11} = \frac{-132}{-11} \quad \boxed{x=12}$$