Warm Up 1/25/19

Simplify:

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

$-12x - 60 - 3x - 9$

$-15x - 69$

2. $-5 + 18 - 4$

$13 - 4$

9

3. $-8(9x) - (2x - 6)$

$-72x - 2x + 6$

$-74x + 6$

ve:

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

$-5x - 10 = -40$

$+10 \quad +10$

$-5x = -30$

$\frac{-5x}{-5} = \frac{-30}{-5}$

$x = 6$

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

$8y + 3 = 8y - 4$

$-8y \quad -8y$

$3 = -4$

$\emptyset$

Ideas/Questions	Notes	VARIABLES ON BOTH SIDES Equations
Steps	1.	Distribute & Combine
	2.	Move variables to the left side
	3.	Solve (x/÷/+/−)

Examples

ANSWERS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

1. $5y - 8 = 3y + 12$

$-3y \quad -3y$

$2y - 8 = 12$

$+8 \quad +8$

$\frac{2y}{2} = \frac{20}{2}$

$y = 10$

2. $-6x + 14 = 12 - 8x$

$+8x \quad +8x$

$2x + 14 = 12$

$-14 \quad -14$

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

$x = -1$

3. $7k = 3k - 36$

$-3k \quad -3k$

$\frac{4k}{4} = \frac{-36}{4}$

$k = -9$

4. $15 - m = 22 - 8m$

$+8m \quad +8m$

$15 + 7m = 22$

$-15 \quad -15$

$\frac{7m}{7} = \frac{7}{7}$

$m = 1$

5. $12 - 2u = 9u + 45$

$-9u \quad -9u$

$12 - 11u = 45$

$-12 \quad -12$

$\frac{-11u}{-11} = \frac{33}{-11}$

$u = -3$

6. $4(2w - 1) = -10(w - 5)$

$8w - 4 = -10w + 50$

$+10w \quad +10w$

$18w - 4 = 50$

$+4 \quad +4$

$\frac{18w}{18} = \frac{54}{18}$

$w = 3$

$5x - (x + 4) = 10 - 2(x - 8)$

$5x - x - 4 = 10 - 2x + 16$

$4x - 4 = 26 - 2x$

$+2x \quad +2x$

$6x - 4 = 26$

$+4 \quad +4$

$\frac{6x}{6} = \frac{30}{6}$

$x = 5$

$8(y + 4) - 2(y - 1) = 70 - 3y$

$8y + 32 - 2y + 2 = 70 - 3y$

$6y + 34 = 70 - 3y$

$+3y \quad +3y$

$9y + 34 = 70$

$-34 \quad -34$

$\frac{9y}{9} = \frac{36}{9}$

$y = 4$

NO SOLUTION & INFINITE SOLUTION

No Solution:	Infinite Solution:
$-4(2x + 1) = -8x - 2$	$-5 - 9x = 3(1 - 3x) - 8$
$-8x - 4 = -8x - 2$ $+8x \quad +8x$ $-4 = -2$ $\emptyset$	$-5 - 9x = 3 - 9x - 8$ $-5 - 9x = -5 - 9x$ $+9x \quad +9x$ $-5 = -5$ ∞
There is **no possible number** that could work as a solution to the equation!	**Every number** could work as a solution!

MORE EXAMPLES!

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

$6x + 6 - 3x = 6 + 3x$

$3x + 6 = 6 + 3x$

$-3x \quad -3x$

$6 = 6$

∞

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

$12x - 36 = 14x - 28$

$-14x \quad -14x$

$-2x - 36 = -28$

$+36 \quad +36$

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

$x = -4$

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

$40x - 24 = -18x - 24$

$+18x \quad +18x$

$58x - 24 = -24$

$+24 \quad +24$

$\frac{58x}{58} = \frac{0}{58}$

$x = 0$

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

$3x - 13 = 7x + 14 - 4x + 28$

$3x - 13 = 3x + 42$

$-3x \quad -3x$

$-13 = 42$

$\emptyset$

Clearing Fractions in Equations

Fractions in Equations

To Solve:

Multiply each term by a common denominator

$$\frac{5x}{4} + 2 = \frac{x}{4} + 7$$

$$\frac{x}{2} - 3 = \frac{x}{7} + 2$$

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

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