

Day 4: Practice & Review

#4

Vocabulary

Distributive Property: $a(x+y) = ax + ay$

Solve each equation for the variable. Check your solution. For the first problem, explain your steps.

<p>1) $5(x+3) = -15$</p> <p><u>Work</u></p> $5x + 15 = -15$ <p>-15 -15 distribute 5</p> $5x = -30$ <p>Minus 15</p> $\frac{5x}{5} = \frac{-30}{5}$ <p>Divide 5</p> $x = -6$	<p>2) $-4(x-5) = -20$</p> $-4x + 20 = -20$ <p>-20 -20</p> $-4x = -40$ $\frac{-4x}{-4} = \frac{-40}{-4}$ $x = 10$	<p>3) $-(a+6) = 10$</p> $-a - 6 = 10$ <p>$+6$ $+6$</p> $-a = 16$ $\frac{-a}{-1} = \frac{16}{-1}$ $a = -16$
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Vocabulary

Like Terms: Terms that are the same
 x 's, y 's, x^2 's, \sqrt{x} 's, #s.

To simplify EXPRESSIONS, we can combine like terms.

Example:

1) $4x + 3 - 6x + 10$

$$-2x + 13$$

2) $3(6x - 4) - 30x$

$$18x - 12 - 30x \rightarrow -12x - 12$$

3) $7x - 4(5x - 1)$

$$7x - 20x + 4$$

$$-13x + 4$$

4) $8x - (x - 2)$

$$8x - x + 2$$

$$7x + 2$$

We can use our understanding of combining like terms when solving multi-step equations →

Solve each equation. Check your solution. For some of them, explain each step.

<p>Example: $-6x - 3(2x + 5) = -9$</p> <p>Work</p> $\begin{aligned} -6x - 6x - 15 &= -9 \\ -12x - 15 &= -9 \\ +15 \quad +15 & \\ -12x &= 6 \\ \frac{-12x}{-12} &= \frac{6}{-12} \\ x &= -\frac{1}{2} \end{aligned}$ <p>Explain</p> <p>distribute 3</p> <p>Combine like terms</p> <p>Plus 15</p> <p>Divide -12</p>	<p>4) $r + 11 + 8r = 29$</p> <p>Work</p> $\begin{aligned} 9r + 11 &= 29 \\ -11 \quad -11 & \\ 9r &= 18 \\ \frac{9r}{9} &= \frac{18}{9} \\ r &= 2 \end{aligned}$ <p>Explain</p> <p>Combine like terms</p> <p>Minus 11</p> <p>Divide 9</p>
<p>5) $-13 = 5(1 + 4m) - 2m$</p> $\begin{aligned} -13 &= 5 + 20m - 2m \\ -13 &= 5 + 18m \\ -5 \quad -5 & \\ -18 &= 18m \\ \frac{-18}{18} &= \frac{18m}{18} \rightarrow m = -1 \end{aligned}$	<p>6) $5x - (3x + 2) = 8$</p> <p>Work</p> $\begin{aligned} 5x - 3x - 2 &= 8 \\ 2x - 2 &= 8 \\ +2 \quad +2 & \\ 2x &= 10 \\ \frac{2x}{2} &= \frac{10}{2} \\ x &= 5 \end{aligned}$ <p>Explain</p> <p>Distribute -</p> <p>Combine like terms</p> <p>Plus 2</p> <p>Divide 2</p>
<p>7) $8\left(\frac{-2x + 10}{8} = 2\right) \cdot 8$</p> $\begin{aligned} -2x + 10 &= 16 \\ -10 \quad -10 & \\ -2x &= 6 \\ \frac{-2x}{-2} &= \frac{6}{-2} \\ x &= -3 \end{aligned}$	<p>8) $\frac{-2x}{8} + 10 = 2$</p> <p>Work</p> $\begin{aligned} 8\left(\frac{-2x}{8} = -8\right) \cdot 8 & \\ -2x &= -64 \\ \frac{-2x}{-2} &= \frac{-64}{-2} \\ x &= 32 \end{aligned}$ <p>Explain</p> <p>Minus 10</p> <p>Multiply 8</p> <p>Divide -2</p>

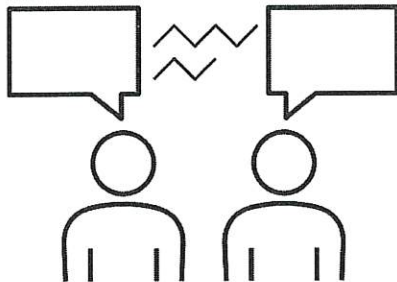
10) Jordan said the answer to the equation $-2x - 5 = -9$ is $x = 7$. Kendall said it was $x = 2$. Which one is correct? Justify your solution.

$$\begin{array}{r} -2x - 5 = -9 \\ +5 \quad +5 \end{array}$$

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

$$x = 2$$

Kendall is correct.



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