Bell Work

Solve and show all work.

1. $5(a-6)=2a+13$

2. $3b-1=\dfrac{2}{3}b+5$

3. $4c+5=\dfrac{3c-11}{2}$

4. What is a function?

In this lesson, you will solve word problems.

4-Steps

1. **Identify the variables.**

2. **Set up an equation.**

3. **Solve the equation.**

4. **Answer the question with a complete sentence.**

1. Bill and Terry had a hot dog eating contest. Terry won by eating 3 more hot dogs than Bill. Together they ate 57 hot dogs. How many hot dogs did they each eat?

Step #1

Bill: x

Terry: $x + 3$

Step #2

$$x + x + 3 = 57$$

$$2x + 3 = 57$$

Step #3

$$\underline{\quad -3 \quad -3 \quad}$$

$$2x = 54$$

Step #4

Bill ate 27 hot dogs and Terry ate 30 hot dogs.

$$\frac{2x}{2} = \frac{54}{2}$$

$$x = 27$$

2. Marsha, Jan, and Cindy went grocery shopping. Marsha spent $7.78 more than Cindy. Jan spent $4.20 less than Marsha. They paid a total of $86.09. How much did each of them spend on food?

Step #2

$$x + 7.78 + x + 7.78 - 4.20 = 86.09$$

Step #1

$$3x + 11.36 = 86.09$$

Step #3

Marsha: $x + 7.78$ $= 32.69$

$$-11.36 - 11.36$$

Jan: $x + 7.78 - 4.20$ $= 28.49$

Cindy: x $= 24.91$

$$3x = 74.73$$

Step #4

$$\frac{3x}{3} = \frac{74.73}{3}$$

Marsha spent $ 32.69, Jan spent $28.49, and Cindy spent $24.91.

$$x = 24.91$$

3. Find 2 consecutive integers with the sum of 165.

Step #1

1st: x $= 82$

2nd: $x + 1$ $= 83$

Step #2 $\quad x + x + 1 = 165$

$2x + 1 = 165$

Step #3

$\underline{\quad -1 \quad\quad -1 \quad}$

$2x = 164$

Step #4

The integers are 82 and 83.

$$\frac{2x}{2} = \frac{164}{2}$$

$$x = 82$$

4. Find 3 consecutive integers with the sum of 198.

Step #1

1st: x $= 65$
2nd: $x + 1 = 66$
3rd: $x + 2 = 67$

Step #2 $x + x + 1 + x + 2 = 198$

$3x + 3 = 198$

Step #3

$$\underline{\quad -3 \qquad -3 \quad}$$

$$3x = 195$$

$$\frac{3x}{3} = \frac{195}{3}$$

$$x = 65$$

Step #4

The integers are
65, 66, and 67.

5. Find 2 consecutive even integers with the sum of -346.

Step #1

1st: x $\quad = -174$

2nd: $x + 2 = -172$

The 1st even integer is x, then 2nd even integer is x+2. You need to skip over the odd (-173) number.

Step #4

The integers are -174 and -172.

Step #2 $\quad x + x + 2 = -346$

$$2x + 2 = -346$$

Step #3

$$\begin{array}{r} 2x + 2 = -346 \\ -2 \quad\quad -2 \\ \hline 2x = -348 \end{array}$$

$$\frac{2x}{2} = \frac{-348}{2}$$

$$x = -174$$

6. Find 2 consecutive odd integers with the sum of 432.

Step #1

1ˢᵗ: x $= 215$

2ⁿᵈ: $x + 2$ $= 217$

The 1ˢᵗ odd integer is x, then 2ⁿᵈ odd integer is x+2. You need to skip over the even (216) number.

Step #2
$$x + x + 2 = 432$$

Step #3
$$2x + 2 = 432$$
$$\underline{-2 \qquad -2}$$
$$2x = 430$$

$$\frac{2x}{2} = \frac{430}{2}$$

$$x = 215$$

Step #4

The integers are 215 and 217.

Assignment:

Solving Equations Worksheet