Name _____

Solve Addition and Subtraction Equations

To solve an equation, you must isolate the variable on one side of the equal sign. You can use **inverse operations**: undoing addition with subtraction or subtraction with addition. These actions are made possible by the **Addition and Subtraction Properties of Equality.**

Solve and check.

Example 1: $y + 6.7 = 9.8$ **Example 2:** $57 = x - 8$

Step 1 Look at the side with the variable. Subtract the number that is added to the variable, or add the number that is subtracted from the variable. Be sure to perform the same operation on both sides of the equation.

$y + 6.7 = 9.8$ $57 = x - 8$

$y + 6.7 - 6.7 = 9.8 - 6.7$ Subtract 6.7 from both sides. $57 + 8 = x - 8 + 8$ Add 8 to both sides.

Step 2 Simplify both sides of the equation.

$y + 6.7 = 9.8$ $57 = x - 8$

$y + 6.7 - 6.7 = 9.8 - 6.7$ $57 + 8 = x - 8 + 8$

$y + 0 = 3.1$ $65 = x + 0$

$y = 3.1$ $65 = x$

Step 3 Check your answer in the original equation.

$y + 6.7 = 9.8$ $57 = x - 8$

$3.1 + 6.7 \stackrel{?}{=} 9.8$ $57 \stackrel{?}{=} 65 - 8$

$9.8 = 9.8$ $57 = 57$

So, $y = 3.1$ is the solution.   So, $x = 65$ is the solution.

Solve and check.

1. $x + 13 = 27$ **2.** $38 = d - 22$ **3.** $12.4 = a + 7.9$ **4.** $w - 2\frac{3}{5} = 4\frac{2}{5}$

Name _____

Solve Multiplication and Division Equations

A multiplication equation shows a variable multiplied by a number.
A division equation shows a variable divided by a number. To solve a
multiplication equation, you use the **Division Property of Equality**.
To solve a division equation, you use the **Multiplication Property of
Equality**. These properties state that both sides of an equation remain
equal when you multiply or divide both sides by the same number.

Solve and check.

Example 1: $\frac{a}{5} = 6$ **Example 2:** $2.5x = 10$

Step 1 Look at the side with the variable. Use the inverse operation to get the variable by itself.

$\frac{a}{5} = 6$ a is divided by 5. $2.5x = 10$ x is multiplied by 2.5.

$5 \times \frac{a}{5} = 6 \times 5$ Multiply both sides by 5. $\frac{2.5x}{2.5} = \frac{10}{2.5}$ Divide both sides by 2.5.

Step 2 Simplify both sides of the equation.

$\frac{a}{5} = 6$ $2.5x = 10$

$5 \times \frac{a}{5} = 6 \times 5$ $\frac{2.5x}{2.5} = \frac{10}{2.5}$

$a = 30$ $x = 4$

Step 3 Check your answer in the original equation.

$\frac{a}{5} = 6$ $2.5x = 10$

$\frac{30}{5} \stackrel{?}{=} 6$ $2.5 \times 4 \stackrel{?}{=} 10$

$6 = 6$ $10 = 10$

So, $a = 30$ is the solution.   So, $x = 4$ is the solution.

Solve and check.

1. $3x = 42$ **2.** $4c = 48$ **3.** $12.8 = 3.2d$ **4.** $12 = 1.5w$

5. $\frac{z}{6} = 9$ **6.** $\frac{d}{4} = 5$ **7.** $11 = \frac{n}{2.4}$ **8.** $12 = \frac{4}{5}k$