

Objective: TSWBAT solve one step equations

Key Concepts**Subtraction Property of Equality**

If you subtract the same value from each side of an equation, the two sides remain equal.

Arithmetic

$$2 \cdot 3 = 6, \text{ so } 2 \cdot 3 - 4 = 6 - 4.$$

Algebra

$$\text{If } a = b, \text{ then } a - c = b - c.$$

1 EXAMPLE Solving Equations by Subtracting

Solve $x + 4 = 38$.

Get x alone on one side of the equation.

$$\begin{array}{r} x + 4 = 38 \\ \underline{-4} \quad \underline{-4} \end{array} \leftarrow \text{Subtract 4 from each side to undo the} \\ \text{addition and get } x \text{ by itself.}$$
$$x = 34 \leftarrow \text{Simplify.}$$

Check

$$x + 4 = 38 \quad \leftarrow \text{Check your solution in the original equation.}$$
$$34 + 4 \stackrel{?}{=} 38 \quad \leftarrow \text{Substitute 34 for } x.$$
$$38 = 38 \checkmark$$

Solve $w + 4.3 = 9.1$. Check the solution.

$$\begin{array}{r} w + 4.3 = 9.1 \\ - 4.3 \quad - 4.3 \\ \hline w = 4.8 \end{array}$$

$$\begin{array}{r} 4.8 \\ + 4.3 \\ \hline 9.1 \end{array} \checkmark$$

$$\begin{array}{r} 15 + g = 120 \\ - 15 \quad - 15 \\ \hline g = 105 \end{array}$$

$$\begin{array}{r} 15 \\ + 105 \\ \hline 120 \end{array} \checkmark$$

$$\begin{array}{r} a + 15 = 31 \\ - 15 \quad - 15 \\ \hline a = 16 \end{array}$$

$$\begin{array}{r} 16 \\ + 15 \\ \hline 31 \end{array} \checkmark$$

2. A cat has gained 1.8 pounds since its checkup a year ago. It now weighs 11.6 pounds. How much did it weigh at its checkup last year?

Key Concepts**Addition Property of Equality**

If you add the same value to each side of an equation the two sides remain equal.

Arithmetic

$$2 \cdot 3 = 6, \text{ so } 2 \cdot 3 + 4 = 6 + 4.$$

Algebra

$$\text{If } a = b, \text{ then } a + c = b + c.$$

3**EXAMPLE****Solving Equations by Adding**

Solve $c - 12 = 43$.

$$c - 12 + 12 = 43 + 12 \quad \leftarrow \text{Add 12 to undo the subtraction.}$$

$$c = 55 \quad \leftarrow \text{Simplify.}$$

Solve $n - 53 = 28$.

$$\begin{array}{r} +53 \\ \hline 0 \end{array} \quad \begin{array}{r} +53 \\ \hline 81 \end{array}$$

$$n = 81$$

$$\begin{array}{r} 81 \\ -53 \\ \hline 28 \end{array} \checkmark$$

Solve $x - 43 = 12$.

$$\begin{array}{r} +43 \\ \hline 0 \end{array} \quad \begin{array}{r} +43 \\ \hline 55 \end{array}$$

$$x = 55$$

$$\begin{array}{r} 55 \\ -43 \\ \hline 12 \end{array} \checkmark$$

Solve $k - 6.4 = 0$.

$$\begin{array}{r} +6.4 \\ \hline 0 \end{array} \quad \begin{array}{r} +6.4 \\ \hline 6.4 \end{array}$$

$$k = 6.4$$

$$\begin{array}{r} 6.4 \\ -6.4 \\ \hline 0 \end{array} \checkmark$$

$5 = x - 20$

3. $19 + t = 51$

6. $71 = b - 29$

9. $50 - y = 30$

4. $p - 11 = 12$

7. $86 + m = 107$

10. $d - 125 = 75$

5. $60 = n + 30$

8. $w + 349 = 761$

11. A car dealer purchased a car for \$2,000 and then sold it for \$3,200. Write and solve an equation to find the profit.

Homework: p. 92, 1-30