

2.4

Variables and Equations

Goal: Solve equations with variables.

Vocabulary

Equation:

Solution of an equation:

Solving an equation:

Example 1

Writing Verbal Sentences as Equations

Verbal Sentence

Equation

a. The sum of x and 4 is 8.

b. The difference of 7 and y is 13.

c. The product of -2 and p is 24.

d. The quotient of n and 3 is 5.

Example 2

Checking Possible Solutions

Tell whether 7 or 8 is a solution of $x - 3 = 5$.

a. Substitute 7 for x .

b. Substitute 8 for x .

$$x - 3 = 5$$

$$x - 3 = 5$$

$$\square - 3 \stackrel{?}{=} 5$$

$$\square - 3 \stackrel{?}{=} 5$$

$$\square \square 5$$

$$\square \square 5$$

Answer: 7 a solution.

Answer: 8 a solution.

✓ **Checkpoint** Write the verbal sentence as an equation.

1. The sum of x and 7 is 12.

2. The quotient of n and 4 is 16.

3. Tell whether 8 or 10 is a solution of $x - 4 = 6$.

Example 3 Solving Equations Using Mental Math

Equation	Question	Solution	Check
a. $x + 4 = 7$	<input type="text"/>	<input type="text"/>	<input type="text"/> + 4 = 7
b. $12 - n = 5$	<input type="text"/>	<input type="text"/>	12 - <input type="text"/> = 5
c. $18 = 3t$	<input type="text"/>	<input type="text"/>	18 = 3(<input type="text"/>)
d. $\frac{y}{4} = -5$	<input type="text"/>	<input type="text"/>	<input type="text"/> 4 = -5

✓ **Checkpoint** Solve the equation using mental math.

4. $x - 8 = 10$

5. $24 = 4m$

6. $\frac{c}{3} = 9$