Lesson 3
Solve and Write Subtraction Equations

Addition and subtraction are _______________ operations (opposite). Therefore, you can solve a subtraction equation by ________________.

Example 1
Solve \( x - 4 = 10 \) AND check.

Check

___________ Property of Equality If you add the same number to each side of an equation, the two sides remain equal.

Example 2
An average Sandhill crane is 37 inches tall. This is 22 inches less than the average Whooping crane’s height. How tall is the average Whooping crane?

Check
Exercises
Solve each equation. Check your solution.

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. $a - 2 = 3$</td>
<td>2. $b - 1 = 7$</td>
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<tr>
<td>3. $6.6 = w - 1.2$</td>
<td>4. $5 = v - 8$</td>
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<tr>
<td>5. $4 = t - 6$</td>
<td>6. $9 = m - 3$</td>
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Lesson 3 Homework Practice

Solve and Write Subtraction Equations

Solve each equation. Check your solution.

1. \( h - 5 = 4 \)  
2. \( g - 6 = 2 \)

3. \( 6 = c - 5 \)  
4. \( 5 = j - 8 \)

5. \( y - 1.2 = 4.8 \)  
6. \( a - 3.2 = 5.5 \)

13. **PARASAILING** A parasailor is attached to a boat. When the boat slows down to turn back toward the beach, the parasailor decreases 25 feet. The parasailer is now 60 feet from boat. What was the original distance?
Lesson 3
Solve and Write Subtraction Equations

Addition and subtraction are inverse operations. Therefore, you can solve a subtraction equation by adding.

Example 1
Solve \( x - 4 = 10 \).

Method 1: Use models.
Model the equation.

\[ \begin{array}{c}
\hline
\text{x} \\ \ \ 10 \ \ \ \ 4 \\
\hline
\end{array} \]

Solve the equation.
By looking at the bar diagram, you can see that you will have to add to find \( x \).

\[ 10 + 4 = 14 \]

The solution is 14.

Method 2: Use symbols.
Write the equation.

\[ x - 4 = 10 \]

Add 4 to each side.

\[ \begin{array}{c}
+4 \\
\hline
+4 \\
\hline
\end{array} \]

Simplify.

\[ x = 14 \]

Check

By looking at the bar diagram, you can see that you will have to add to find \( x \).

\[ 10 + 4 = 14 \]

The sentence is true. \( \checkmark \)

The Addition Property of Equality If you add the same number to each side of an equation, the two sides remain equal.

Example 2
An average Sandhill crane is 37 inches tall. This is 22 inches less than the average Whooping crane’s height. How tall is the average Whooping crane?

Words
Whooping crane's height minus 22 is Sandhill crane's height.

Variable
Let \( w \) represent the Whooping crane's height.

Model

\[ \begin{array}{c}
\hline
\text{37 in.} \ \ \ \ 22 \text{ in.} \\
\hline
\end{array} \]

Equation
\[ w - 22 = 37 \]

Write the equation.

\[ w - 22 = 37 \]

Add 22 to both sides.

\[ +22 + 22 \]

Simplify.

\[ w = 59 \]

An average Whooping crane has a height of 59 inches.