SOLUTIONS When you substitute a number for the variable in an open sentence like $x + 2 = 5$ or $2y > 6$, the resulting statement is either true or false. If the statement is true, the number is a **solution of the equation** or a **solution of the inequality**.

EXAMPLE 2 Check possible solutions

Check whether 3 is a solution of the equation or inequality.

Equation/Inequality	Substitute	Conclusion
a. $8 - 2x = 2$	$8 - 2(3) \stackrel{?}{=} 2$	$2 = 2$ ✓ 3 is a solution.
b. $4x - 5 = 6$	$4(3) - 5 \stackrel{?}{=} 6$	$7 = 6$ ✗ 3 is *not* a solution.
c. $2z + 5 > 12$	$2(3) + 5 \stackrel{?}{>} 12$	$11 > 12$ ✗ 3 is *not* a solution.
d. $5 + 3n \le 20$	$5 + 3(3) \stackrel{?}{\le} 20$	$14 \le 20$ ✓ 3 is a solution.

USING MENTAL MATH Some equations are simple enough to solve using mental math. Think of the equation as a question. Once you answer the question, check the solution.

EXAMPLE 3 Use mental math to solve an equation

Equation	Think	Solution	Check
a. $x + 4 = 10$	What number plus 4 equals 10?	6	$6 + 4 = 10$ ✓
b. $20 - y = 8$	20 minus what number equals 8?	12	$20 - 12 = 8$ ✓
c. $6n = 42$	6 times what number equals 42?	7	$6(7) = 42$ ✓
d. $\frac{a}{5} = 9$	What number divided by 5 equals 9?	45	$\frac{45}{5} = 9$ ✓

✓ **GUIDED PRACTICE**   for Examples 2 and 3

Check whether the given number is a solution of the equation or inequality.

2. $9 - x = 4$; 5   **3.** $b + 5 < 15$; 7   **4.** $2n + 3 \ge 21$; 9

Solve the equation using mental math.

5. $m + 6 = 11$ **6.** $5x = 40$ **7.** $\frac{r}{4} = 10$