7.10 Solving an Equation with Radicals: Problem Type 1

• Example 1

Solve for x.

$$\sqrt{x - 9} = 4$$

Since the radical term is isolated on one side of the equation we need only to square both sides and isolate x.

$$\begin{aligned} \sqrt{x - 9} &= 4 \\ x - 9 &= 16 \\ x &= 25 \end{aligned}$$

Recall that raising both sides of an equation to an even power does not yield an equivalent equation. Therefore, we need to check the value obtained in the original equation.

$$\sqrt{25 - 9} = \sqrt{16} = 4$$

The solution checks.

CHECK YOURSELF 1

Solve for s.

$$\sqrt{s + 10} = 3$$

CHECK YOURSELF ANSWER

1. $s = -1$.

7.10 Exercises

Name

Section Date

ANSWERS

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Solve for the variable in each of the following equations.

1. $\sqrt{w - 9} = 7$

2. $\sqrt{x + 18} = 5$

3. $\sqrt{t - 14} = 6$

4. $\sqrt{s + 12} = 10$

5. $\sqrt{-x - 4} = 2$

6. $\sqrt{w + 13} = 8$

7. $\sqrt{8 - h} = 4$

8. $\sqrt{10 - v} = 11$

9. $\sqrt{w + 1} = 3$

10. $-\sqrt{x - 1} = 17$

11. $-\sqrt{t + 2} = 22$

12. $-\sqrt{t - 9} = 0$