

## Solving an Equation with Radicals: Problem Type 2

### • Example 1

Solve for  $y$ .

$$\sqrt{y + 9} = \sqrt{2y + 3}$$

We begin by squaring both sides of the equation.

$$\begin{aligned}\sqrt{y + 9} &= \sqrt{2y + 3} \\ y + 9 &= 2y + 3\end{aligned}$$

Isolating  $y$  yields

$$y = 6.$$

Substitute  $y = 6$  into the original equation to check.

$$\begin{aligned}\sqrt{6 + 9} &\stackrel{?}{=} \sqrt{2(6) + 3} \\ \sqrt{15} &= \sqrt{15}\end{aligned}$$

The solution checks.

### • • • CHECK YOURSELF 1

Solve for  $w$ .

$$\sqrt{w + 1} = \sqrt{3w - 2}$$


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### • • • CHECK YOURSELF ANSWER

$$1. w = \frac{3}{2}.$$


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# 7.11 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

Solve for the variable in each of the following.

1.  $\sqrt{t + 3} = \sqrt{2t - 11}$

2.  $\sqrt{x - 4} = \sqrt{2x - 12}$

3.  $\sqrt{w + 1} = \sqrt{8w - 14}$

4.  $\sqrt{y - 3} = \sqrt{-y + 6}$

5.  $\sqrt{15x - 12} = \sqrt{5x + 8}$

6.  $\sqrt{3t - 8} = \sqrt{2t + 1}$

7.  $\sqrt{5w + 16} = \sqrt{8w - 10}$

8.  $\sqrt{4z - 1} = \sqrt{2z + 1}$

9.  $\sqrt{3x + 2} = \sqrt{2x + 7}$

10.  $\sqrt{-z - 9} = \sqrt{z - 20}$

11.  $\sqrt{18y + 3} = \sqrt{21y - 2}$

12.  $\sqrt{-w + 4} = \sqrt{w + 4}$