

**EXTRA PRACTICE 42**  
**Solving Radical Equations**  
 Use after Section 10.6

Name \_\_\_\_\_

Example: Solve.

$$\sqrt{x+19} - \sqrt{x-20} = 3$$

$$\begin{aligned} \sqrt{x+19} &= \sqrt{x-20} + 3 \\ (\sqrt{x+19})^2 &= (\sqrt{x-20} + 3)^2 \\ x+19 &= x-20 + 6\sqrt{x-20} + 9 \\ 30 &= 6\sqrt{x-20} \\ 5 &= \sqrt{x-20} \\ 5^2 &= (\sqrt{x-20})^2 \\ 25 &= x-20 \\ 45 &= x \end{aligned}$$

The solution is 45.

Check:

$$\begin{array}{r|l} \sqrt{x+19} - \sqrt{x-20} = 3 & \\ \hline \sqrt{45+19} - \sqrt{45-20} & 3 \\ \sqrt{64} - \sqrt{25} & \\ 8 - 5 & \\ 3 & \end{array}$$

Solve.

1.  $x + 2 = \sqrt{7x + 2}$  \_\_\_\_\_

2.  $\sqrt{x} - 3 = 3$  \_\_\_\_\_

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

4.  $y - 5 = \sqrt{y-3}$  \_\_\_\_\_

5.  $\sqrt{-3x+4} = 2 - x$  \_\_\_\_\_

6.  $1 - x = \sqrt{-5x+1}$  \_\_\_\_\_

7.  $\sqrt{a} + 2 = 5$  \_\_\_\_\_

8.  $\sqrt{x-5} + \sqrt{x+6} = 11$  \_\_\_\_\_

**EXTRA PRACTICE 42 (continued)**  
**Solving Radical Equations**  
**Use after Section 10.6**

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9.  $\sqrt[3]{x-1} - 3 = 0$  \_\_\_\_\_

10.  $\sqrt{y+3} - \sqrt{2y-8} = 1$  \_\_\_\_\_

11.  $\sqrt{x+12} - \sqrt{x-12} = 12$  \_\_\_\_\_

12.  $\sqrt{x+4} - \sqrt{2x+9} = -1$  \_\_\_\_\_

13.  $\sqrt{x+7} + \sqrt{x-4} = 11$  \_\_\_\_\_

14.  $5 - \sqrt{x} = 1$  \_\_\_\_\_

15.  $\sqrt[3]{4x+3} + 2 = 5$  \_\_\_\_\_

16.  $\sqrt{x+9} + \sqrt{x+4} = 5$  \_\_\_\_\_

17.  $\sqrt{x+10} + \sqrt{x} = 3$  \_\_\_\_\_

18.  $\sqrt{5x+3} = \sqrt{3x+7}$  \_\_\_\_\_

19.  $\sqrt{7x+8} - \sqrt{41-2x} = 3$  \_\_\_\_\_

20.  $\sqrt{10-2x} - \sqrt{5x+16} = 3$  \_\_\_\_\_