

**10-4****Practice**

Form K

## Solving Radical Equations

Solve each radical equation. Check your solution.

1.  $\sqrt{y} + 6 = 12$  **36**

2.  $\sqrt{4n} - 6 = 0$  **9**

3.  $\sqrt{3k + 3} = 6$  **11**

4.  $\sqrt{4p - 8} = 8$  **18**

5.  $\sqrt{5t + 1} = 9$  **16**

6.  $\sqrt{\frac{x^2}{8}} = 12$   **$\pm 24\sqrt{2}$**

7.  $\sqrt{\frac{3m}{2}} = 3$  **6**

8.  $\sqrt{\frac{a^2}{4}} = 8$   **$\pm 16$**

9. The motion of a pendulum can be modeled by  $t = 2\sqrt{\frac{l}{3.3}}$ , where  $t$  is the time in seconds for one complete swing and  $l$  is the length of the pendulum in feet. If the pendulum takes 2 seconds to complete one swing, how long is the pendulum? Round to the nearest hundredth of a foot. **3.30 ft**
10. The length  $r$  of the radius of a sphere is given by  $r = \sqrt{\frac{SA}{4\pi}}$ , where  $SA$  represents the sphere's surface area. If a sphere has a surface area of  $276 \text{ cm}^2$ , what is the length of its radius? Use  $\pi = 3.14$ . Round to the nearest hundredth of a centimeter. **4.69 cm**
11. The distance  $d$  in feet that it takes an automobile to stop if it is traveling  $S$  miles per hour is given by  $S = \sqrt{21d}$ . Find the distance it would take an automobile traveling 45 miles per hour to stop. Round your answer to the nearest tenth of a foot. **96.4 ft**

# 10-4 Practice (continued)

## Solving Radical Equations

Form K

Solve each radical equation. Check your solution.

12.  $\sqrt{5p+1} = \sqrt{2p+7}$  **2**

13.  $\sqrt{n+3} = \sqrt{11-n}$  **4**

14.  $\sqrt{t^2+3} = \sqrt{4t}$  **3, 1**

15.  $\sqrt{2b^2+6} = \sqrt{5b}$  **no solution**

16.  $10 = \sqrt{8q+36}$  **8**

17.  $\frac{z}{2} = \sqrt{z-5}$  **no solution**

Solve each radical equation. Check your solution. If there is no solution, write *no solution*.

18.  $x = \sqrt{-x+20}$   
**4**

19.  $g = \sqrt{g+2}$   
**2**

20.  $h = \sqrt{-13h-42}$   
**No solution**

21.  $w = \sqrt{7w+18}$   
**9**

22. **Writing** What is an extraneous solution? How do you determine if a solution is extraneous?

**An extraneous solution is an apparent solution that does not satisfy the original equation. Substitute all solutions into the original equation to see if they work.**

23. **Open-Ended** Write a radical equation that has two solutions. Solve the equation. Check both solutions. Show your work.**Answers may vary. Sample:**

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

$x^2 = 3x - 2$

$x^2 - 3x + 2 = 0$

$(x-1)(x-2) = 0$

$x = 1, 2$

**Check:**

$x = 1$

$1 = \sqrt{3(1)-2}$

$1 = \sqrt{1}$

$1 = 1$

$x = 2$

$2 = \sqrt{3(2)-2}$

$2 = \sqrt{4}$

$2 = 2$