Name_____ Date_____

7.1 Finding Square Roots
For use with Activity 7.1

Essential Question How can you find the dimensions of a square or a circle when you are given its area?

When you multiply a number by itself, you square the number.

Symbol for squaring is the exponent 2. → $4^2 = 4 \cdot 4$
$= 16$

4 squared is 16.

To "undo" this, take the *square root* of the number.

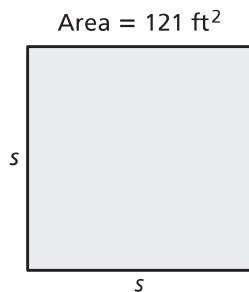Symbol for square root is a *radical sign*, $\sqrt{\ }$. → $\sqrt{16} = \sqrt{4^2} = 4$

The square root of 16 is 4.

1 **ACTIVITY:** Finding Square Roots

Work with a partner. Use a square root symbol to write the side length of the square. Then find the square root. Check your answer by multiplying.
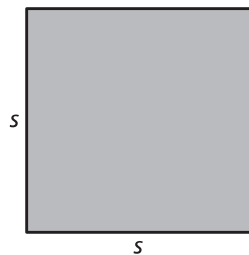
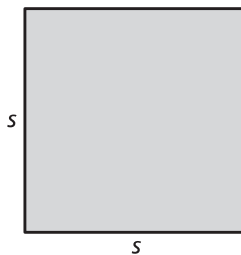**a. Sample:** $s = \sqrt{121} =$ **Check:**

Area = 121 ft²

s

s

The length of each side of the square is _____.

b. Area = 81 yd²

s

s

c. Area = 324 cm²

s

s

d. Area = 361 mi²

s

s
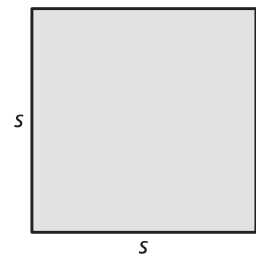
7.1 **Finding Square Roots** (continued)

e. Area = 225 mi^2

s s

f. Area = 2.89 in.^{2}

s s

g. Area = $\frac{4}{9}$ ft^2

s s
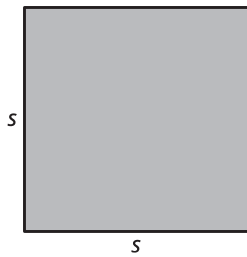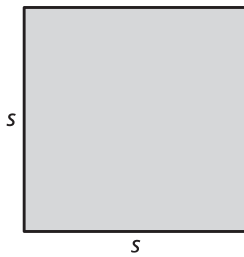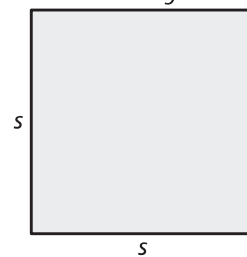
2 **ACTIVITY:** Using Square Roots

Work with a partner. Find the radius of each circle.

a.

r

Area = 36π in.^{2}

b.

r

Area = π yd^2

c.

r

Area = 0.25π ft^2

d.

r
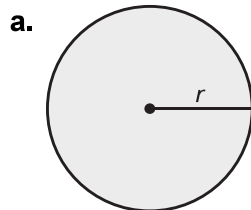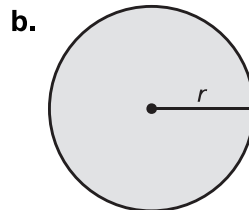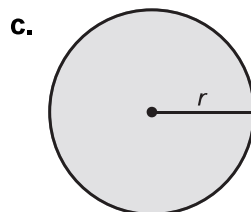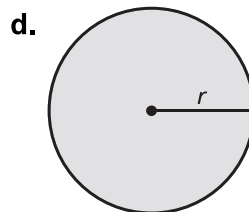
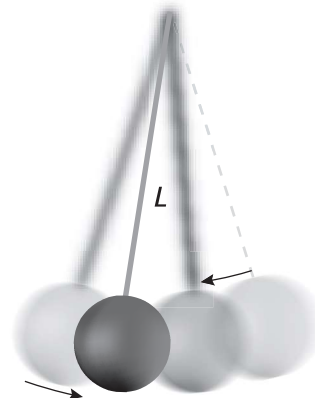Area = $\frac{9}{16}\pi$ m^2

3 **ACTIVITY:** The Period of a Pendulum

Work with a partner.

The period of a pendulum is the time (in seconds) it takes the pendulum to swing back *and* forth.
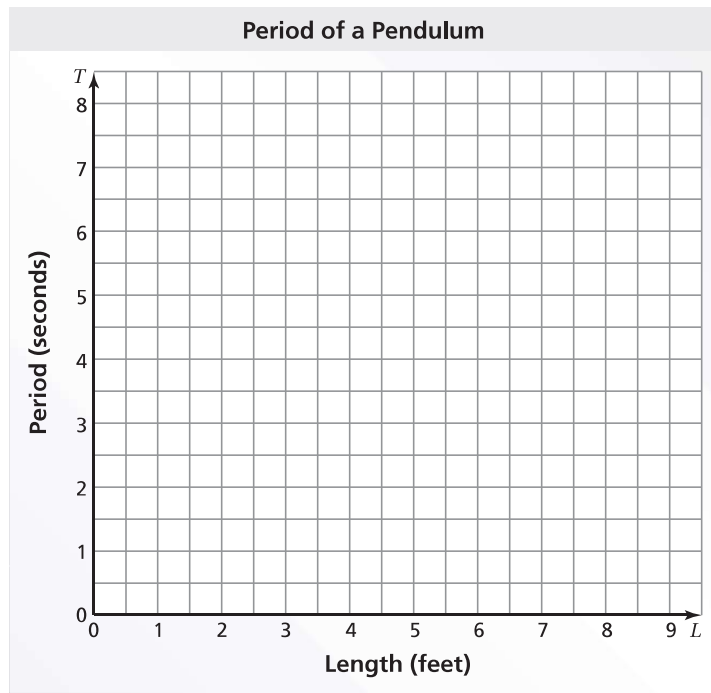
The period T is represented by $T = 1.1\sqrt{L}$, where L is the length of the pendulum (in feet).

Complete the table. Then graph the function on the next page. Is the function linear?

L

7.1 **Finding Square Roots** (continued)

L	1.00	1.96	3.24	4.00	4.84	6.25	7.29	7.84	9.00
T									

Period of a Pendulum

What Is Your Answer?

4. **IN YOUR OWN WORDS** How can you find the dimensions of a square or circle when you are given its area? Give an example of each. How can you check your answers?

Name _____ Date _____

Practice
For use after Lesson 7.1

Find the two square roots of the number.

1. 16   **2.** 100   **3.** 196

Find the square root(s).

4. $\sqrt{169}$ **5.** $\sqrt{\dfrac{4}{225}}$ **6.** $-\sqrt{12.25}$

Evaluate the expression.

7. $2\sqrt{36} + 9$ **8.** $8 - 11\sqrt{\dfrac{25}{121}}$ **9.** $3\left(\sqrt{\dfrac{125}{5}} - 8\right)$

10. A trampoline has an area of 49π square feet. What is the diameter of the trampoline?