Name _____ Date _____

# 6.2 Worksheet #1

**In Exercises 1 and 2, rewrite the expression in rational exponent form.**

**1.** $\sqrt{7}$

**2.** $\sqrt[4]{13}$

**In Exercises 3 and 4, rewrite the expression in radical form.**

**3.** $14^{1/4}$

**4.** $117^{1/6}$

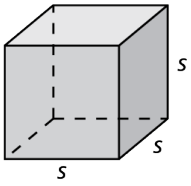
**In Exercises 5 and 6, find the indicated real *n*th root(s) of *a*.**

**5.** $n = 3, a = 27$

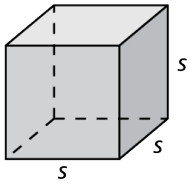
**6.** $n = 4, a = 16$

**In Exercises 7 and 8, find the dimensions of the cube. Check your answer.**

**7.** Volume $= 125 \text{ ft}^3$




**8.** Volume $= 343 \text{ m}^3$




**In Exercises 9–11, evaluate the expression.**

**9.** $\sqrt[3]{-125}$

**10.** $\sqrt[4]{81}$

**11.** $\sqrt[4]{-625}$

**In Exercises 12 and 13, rewrite the expression in rational exponent form.**

**12.** $\left(\sqrt[4]{14}\right)^3$

**13.** $\left(\sqrt[3]{-40}\right)^5$

**In Exercises 14 and 15, rewrite the expression in radical form.**

**14.** $10^{3/5}$

**15.** $(-3)^{6/5}$

**In Exercises 16–18, evaluate the expression.**

**16.** $81^{3/4}$ **17.** $25^{3/2}$ **18.** $(-27)^{2/3}$

**19.** The area of a square patio is $49^3$ square inches. Find the length of one side of the patio.

**20.** The radius of a sphere is given by the equation $r = \left(\frac{3V}{4\pi}\right)^{1/3}$, where $V$ is the volume of the sphere. Find the radius, to the nearest centimeter, of a sphere that has a volume of 268 cubic centimeters. Use 3.14 for $\pi$.

## 6.1 Extra Practice

| | | |
|---|---|---|
| 1. $\left(\frac{x^3}{y^5}\right)^2$ | 2. $\frac{5x^{-2}}{15y^{-3}}$ | 3. $\frac{(-4x)^3}{-32x^8}$ |
| 4. $\frac{x(x^{-5})}{x^{-7}}$ | 5. $\left(\frac{1}{6}\right)^{-2}$ | 6. $\frac{2x^{-5}y^7}{4x^6y^{-8}}$ |
| 7. $\frac{(2x^5y^{-7})^{-3}}{(4y^3)^2}$ | 8. $\frac{15}{25y^{-4}}$ | 9. $\frac{(4x^4y^{-11})^2}{(5x^2)^0}$ |