

## 6-6 Practice

### Rational Exponents

Write each expression in radical form, or write each radical in exponential form.

1.  $5^{\frac{1}{3}}$

2.  $6^{\frac{2}{5}}$

3.  $m^{\frac{4}{7}}$

4.  $(n^3)^{\frac{2}{5}}$

5.  $\sqrt{79}$

6.  $\sqrt[4]{153}$

7.  $\sqrt[3]{27m^6n^4}$

8.  $\sqrt[5]{2a^{10}b}$

Evaluate each expression.

9.  $81^{\frac{1}{4}}$

10.  $1024^{\frac{1}{5}}$

11.  $8^{\frac{5}{3}}$

12.  $-256^{\frac{3}{4}}$

13.  $(-64)^{\frac{2}{3}}$

14.  $27^{\frac{1}{3}} \cdot 27^{\frac{4}{3}}$

15.  $\left(\frac{125}{216}\right)^{\frac{2}{3}}$

16.  $\frac{64^{\frac{3}{2}}}{343^{\frac{2}{3}}}$

17.  $(25^{\frac{1}{2}})(-64^{-\frac{1}{3}})$

Simplify each expression.

18.  $g^{\frac{4}{7}} \cdot g^{\frac{3}{7}}$

19.  $s^{\frac{3}{4}} \cdot s^{\frac{13}{4}}$

20.  $(u^{\frac{1}{5}})^{\frac{4}{5}}$

21.  $y^{-\frac{1}{2}}$

22.  $b^{-\frac{3}{5}}$

23.  $\frac{q^{\frac{3}{2}}}{q^{\frac{5}{2}}}$

24.  $\frac{t^{\frac{2}{3}}}{5t^{\frac{1}{2}} \cdot t^{-\frac{3}{4}}}$

25.  $\frac{2z^{\frac{1}{2}}}{z^2 - 1}$

26.  $\sqrt[10]{8^5}$

27.  $\sqrt{12} \cdot \sqrt[5]{12^3}$

28.  $\sqrt[4]{6} \cdot 3\sqrt[4]{6}$

29.  $\frac{a}{\sqrt{3b}}$

**30. ELECTRICITY** The amount of current in amps  $I$  that an appliance uses can be calculated using the formula

$I = \left(\frac{P}{R}\right)^{\frac{1}{2}}$ , where  $P$  is the power in watts and  $R$  is the resistance in ohms. How much current does an appliance use if  $P = 500$  watts and  $R = 10$  ohms? Round your answer to the nearest tenth.

**31. BUSINESS** A company that produces DVDs uses the formula  $C = 88n^{\frac{1}{3}} + 330$  to calculate the cost  $C$  in dollars of producing  $n$  DVDs per day. What is the company's cost to produce 150 DVDs per day? Round your answer to the nearest dollar.