

6-6: Rational Exponents (Practice)

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

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

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

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

4. $\sqrt{79}$

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

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

Evaluate each expression.

7. $81^{\frac{1}{4}}$

8. $1024^{\frac{1}{5}}$

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

10. $27^{\frac{1}{3}} \cdot 27^{\frac{4}{3}}$

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

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

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Simplify each expression.

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

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

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

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

15. $\left(u^{\frac{1}{3}}\right)^{\frac{4}{5}}$

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

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

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

17. $b^{\frac{3}{5}}$

23. **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.

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