

Practice 7-4**Rational Exponents**

Simplify each expression. Assume that all variables are positive.

1. $\left(81^{\frac{1}{4}}\right)^4$

2. $\left(32^{\frac{1}{5}}\right)^5$

3. $(256^4)^{\frac{1}{4}}$

4. $16^{\frac{1}{4}}$

5. 3.6^0

6. $\left(\frac{1}{16}\right)^{\frac{1}{4}}$

7. $27^{\frac{1}{3}}$

Simplify each expression. Write final answer in radical form.

8. $x^{\frac{1}{2}} \cdot x^{\frac{1}{3}}$

9. $2y^{\frac{1}{2}} \cdot y$

10. $y^{\frac{2}{5}} \cdot y^{\frac{3}{8}}$

11. $\left(3x^{\frac{1}{2}}\right)\left(4x^{\frac{2}{3}}\right)$

12. $\left(2x^{\frac{2}{5}}\right)\left(6x^{\frac{1}{4}}\right)$

Write each expression in radical form.

13. $\frac{x^{\frac{4}{3}}}{t^{-\frac{2}{7}}}$

14. $\frac{b^{\frac{1}{5}}}{z^{\frac{-2}{3}}}$

Write each expression in exponential form.

15. $\sqrt{x^3}$

16. $\sqrt[3]{m}$

17. $\sqrt[5]{n^4}$