

Write each radical expression in exponential form.

1. $\sqrt[4]{y^3}$

5. $(\sqrt{x})^5$

9. $\sqrt[5]{5n^2}$

2. $\frac{1}{\sqrt[5]{m^7}}$

6. $\frac{1}{(\sqrt[3]{y})^{11}}$

10. $\frac{1}{\sqrt[4]{8p^3}}$

3. $\sqrt[3]{(4n^8)^2}$

7. $(\sqrt[3]{10k})^5$

11. $\sqrt[8]{2x^4}$

4. $1/\sqrt{(3p^9)^3}$

8. $\frac{1}{(\sqrt[7]{11n})^4}$

12. $\frac{1}{\sqrt[3]{b^7}}$

Write each rational exponent in radical form.

13. $r^{\frac{5}{6}}$

17. $(5x)^{\frac{3}{4}}$

21. $5^{\frac{1}{4}}x^{\frac{5}{4}}$

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

18. $(6b)^{\frac{1}{3}}$

22. $7^{\frac{2}{3}}w^{\frac{1}{3}}$

15. $t^{-\frac{1}{4}}$

19. $(7t)^{-\frac{2}{5}}$

23. $2^{-\frac{7}{5}}r^{-\frac{1}{5}}$

16. $h^{-\frac{10}{4}}$

20. $(2xy)^{-\frac{7}{3}}$

24. $3^{-\frac{1}{2}}d^{-\frac{3}{2}}$

Simplify the following expressions.

25. $\sqrt{32}$

28. $\sqrt[3]{27b^4}$

26. $\sqrt[6]{c^{18}}$

29. $\sqrt{63a^3b^4}$

27. $\sqrt{64x^4}$

30. $\sqrt[4]{112x^4y^7}$