

Rational Exponent Practice 2DO WORK ON A SEPARATE SHEET OF PAPER

Simplify each expression.

1. $36^{\frac{1}{2}}$
2. $27^{\frac{1}{3}}$
3. $49^{\frac{1}{2}}$
4. $10^{\frac{1}{2}} \cdot 10^{\frac{1}{2}}$
5. $(-3)^{\frac{1}{3}} \cdot (-3)^{\frac{1}{3}} \cdot (-3)^{\frac{1}{3}}$
6. $3^{\frac{1}{2}} \cdot 12^{\frac{1}{2}}$
7. $2^{\frac{1}{2}} \cdot 32^{\frac{1}{2}}$
8. $3^{\frac{1}{3}} \cdot 9^{\frac{1}{3}}$
9. $3^{\frac{1}{4}} \cdot 27^{\frac{1}{4}}$

Write each expression in radical form.

10. $x^{\frac{1}{6}}$
11. $x^{\frac{1}{5}}$
12. $x^{\frac{2}{7}}$
13. $y^{\frac{2}{5}}$
14. $y^{-\frac{9}{8}}$
15. $t^{-\frac{3}{4}}$
16. $x^{1.5}$
17. $y^{1.2}$

Write each expression in exponential form.

18. $\sqrt{-10}$
19. $\sqrt{7x^3}$
20. $\sqrt{(7x)^3}$
21. $(\sqrt{7x})^3$
22. $\sqrt[3]{a^2}$
23. $(\sqrt[3]{a})^2$
24. $\sqrt[4]{c^2}$
25. $\sqrt[3]{(5xy)^6}$

Write each expression in simplest form. Assume that all variables are positive.

38. $(x^{\frac{2}{3}})^{-3}$
39. $(x^{-\frac{4}{7}})^7$
40. $(3x^{\frac{2}{3}})^{-1}$
41. $5(x^{\frac{2}{3}})^{-1}$
42. $(-27x^{-9})^{\frac{1}{3}}$
43. $(-32y^{15})^{\frac{1}{5}}$
44. $\left(\frac{x^3}{x^{-1}}\right)^{-\frac{1}{4}}$
45. $\left(\frac{x^2}{x^{-11}}\right)^{\frac{1}{3}}$
46. $(x^{\frac{1}{2}}y^{-\frac{2}{3}})^{-6}$
47. $(x^{\frac{2}{3}}y^{-\frac{1}{6}})^{-12}$
48. $\left(\frac{x^{\frac{1}{4}}}{y^{-\frac{3}{4}}}\right)^{12}$
49. $\left(\frac{x^{-\frac{2}{3}}}{y^{-\frac{1}{3}}}\right)^{15}$

$$27) \frac{4x^0y^{-2}z^3}{4x}$$

$$28) \frac{2h^3j^{-3}k^4}{3jk}$$

$$29) \frac{4m^4n^3p^3}{3m^2n^2p^4}$$

$$30) \frac{3x^3y^{-1}z^{-1}}{x^{-4}y^0z^0}$$

$$20) \frac{v^2 - 5v - 14}{v^2 + 4v + 4}$$

$$16) \frac{2}{n+8} + \frac{4}{n+1}$$

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