

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

45. $(\frac{x^2}{x-11})^{\frac{1}{3}}$

46. $(x^{\frac{1}{2}}y^{-\frac{2}{3}})^{-6}$

47. $(x^{\frac{2}{3}}y^{-\frac{1}{6}})^{-12}$

48. $(\frac{x^{\frac{1}{4}}}{y^{-\frac{3}{4}}})^{12}$

49. $(\frac{x^{-\frac{2}{3}}}{y^{-\frac{1}{3}}})^{15}$

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