

Algebra 2 Year 2

Review 6.4 Rational Exponents

Simplify each expression.

1. $125^{\frac{1}{3}}$

2. $64^{\frac{1}{2}}$

7. $11^{\frac{1}{3}} \cdot 11^{\frac{1}{3}} \cdot 11^{\frac{1}{3}}$

8. $7^{\frac{1}{2}} \cdot 28^{\frac{1}{2}}$

9. $8^{\frac{1}{4}} \cdot 32^{\frac{1}{4}}$

10. $12^{\frac{1}{2}} \cdot 27^{\frac{1}{2}}$

11. $12^{\frac{1}{3}} \cdot 45^{\frac{1}{3}} \cdot 50^{\frac{1}{3}}$

Write each expression in radical form.

13. $x^{\frac{4}{3}}$

14. $(2y)^{\frac{1}{3}}$

15. $a^{1.5}$

19. $m^{2.4}$

20. $t^{-\frac{2}{7}}$

21. $a^{-1.6}$

Write each expression in exponential form.

22. $\sqrt{x^3}$

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

24. $\sqrt{5y}$

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

32. $(81^{\frac{1}{4}})^4$

33. $(32^{\frac{1}{5}})^5$

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

39. $2y^{\frac{1}{2}} \cdot y$

40. $(8^2)^{\frac{1}{3}}$

47. $(3a^{\frac{1}{2}}b^{\frac{1}{3}})^2$

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

49. $(a^{\frac{2}{3}}b^{-\frac{1}{2}})^{-6}$

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

51. $(\frac{x^{\frac{4}{7}}}{x^{\frac{2}{3}}})$

52. $(2a^{\frac{1}{4}})^3$

59. $x^{\frac{1}{4}} \cdot x^{\frac{1}{6}} \cdot x^{\frac{1}{3}}$

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

61. $(\frac{12x^8}{75y^{10}})^{\frac{1}{2}}$

6.5 Solving Radical Equations

Solve.

1. $5\sqrt{x} + 2 = 12$

2. $3\sqrt{x} - 8 = 7$

3. $\sqrt{4x} + 2 = 8$

10. $\sqrt[3]{2x + 1} = 3$

11. $\sqrt[3]{13x - 1} - 4 = 0$

12. $\sqrt[3]{2x - 4} = -2$

13. $(x - 2)^{\frac{1}{3}} = 5$

14. $(2x + 1)^{\frac{1}{3}} = -3$

15. $2x^{\frac{3}{4}} = 16$

22. $(2x + 1)^{\frac{1}{3}} = 1$

23. $(x - 2)^{\frac{2}{3}} - 4 = 5$

24. $3x^{\frac{4}{3}} + 5 = 53$

Solve. Check for extraneous solutions.

29. $\sqrt{x + 1} = x - 1$

30. $\sqrt{2x + 1} = -3$

39. $\sqrt[3]{2x - 4} = -2$

40. $2\sqrt[5]{5x + 2} - 1 = 3$

41. $\sqrt{4x + 2} = \sqrt{3x + 4}$

42. $\sqrt{7x - 6} - \sqrt{5x + 2} = 0$

45. $\sqrt{2x} - \sqrt{x + 1} = 1$

46. $\sqrt{7x - 1} = \sqrt{5x + 5}$