

Practice 11-1**Simplifying Radicals**

Simplify each radical expression. Assume that all variables under radicals represent positive numbers.

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|--------------------------------------|-------------------------------------|--|------------------------------------|-----------------------------------|
| 1. $\sqrt{32}$ | 2. $\sqrt{22} \cdot \sqrt{8}$ | 3. $\sqrt{147}$ | 4. $\sqrt{\frac{17}{144}}$ | 5. $\sqrt{a^2b^5}$ |
| 6. $\frac{2}{\sqrt{6}}$ | 7. $\sqrt{80}$ | 8. $\sqrt{27}$ | 9. $\frac{\sqrt{256}}{\sqrt{32}}$ | 10. $\frac{8}{\sqrt{7}}$ |
| 11. $\sqrt{12x^4}$ | 12. $\frac{\sqrt{96}}{\sqrt{12}}$ | 13. $\sqrt{200}$ | 14. $\sqrt{\frac{12}{225}}$ | 15. $\sqrt{15} \cdot \sqrt{6}$ |
| 16. $\sqrt{120}$ | 17. $\frac{4}{\sqrt{2a}}$ | 18. $(3\sqrt{2})^3$ | 19. $\sqrt{250}$ | 20. $\frac{\sqrt{65}}{\sqrt{13}}$ |
| 21. $\sqrt{84}$ | 22. $\sqrt{\frac{18}{225}}$ | 23. $\sqrt{48s^3}$ | 24. $3\sqrt{24}$ | 25. $\sqrt{15} \cdot \sqrt{35}$ |
| 26. $\sqrt{160}$ | 27. $\frac{6}{\sqrt{3}}$ | 28. $\frac{\sqrt{48n^6}}{\sqrt{6n^3}}$ | 29. $\sqrt{136}$ | 30. $\sqrt{\frac{27x^2}{256}}$ |
| 31. $\sqrt{m^3n^2}$ | 32. $\frac{\sqrt{180}}{\sqrt{9}}$ | 33. $\sqrt{18} \cdot \sqrt{8}$ | 34. $(10\sqrt{3})^2$ | 35. $\sqrt{\frac{17}{64}}$ |
| 36. $\sqrt{50}$ | 37. $\sqrt{48}$ | 38. $\sqrt{20}$ | 39. $\sqrt{8}$ | 40. $\sqrt{25x^2}$ |
| 41. $\sqrt{\frac{7}{9}}$ | 42. $\sqrt{\frac{17}{64}}$ | 43. $\frac{\sqrt{48}}{\sqrt{8}}$ | 44. $\frac{\sqrt{120}}{\sqrt{10}}$ | 45. $\frac{5}{\sqrt{2}}$ |
| 46. $\sqrt{75}$ | 47. $\sqrt{300}$ | 48. $\sqrt{49a^3}$ | 49. $\sqrt{125}$ | 50. $\sqrt{28x^4}$ |
| 51. $\frac{7}{\sqrt{3}}$ | 52. $\sqrt{\frac{15}{49}}$ | 53. $\frac{\sqrt{60}}{\sqrt{12}}$ | 54. $\frac{3}{\sqrt{3}}$ | 55. $\frac{4}{\sqrt{8}}$ |
| 56. $\sqrt{72x^3}$ | 57. $\sqrt{50y^3}$ | 58. $\sqrt{45x^2y^3}$ | 59. $\sqrt{\frac{44x^3}{9x}}$ | 60. $\frac{\sqrt{4}}{\sqrt{3x}}$ |
| 61. $6\sqrt{20}$ | 62. $\sqrt{ab^3}$ | 63. $\sqrt{a^5b^6}$ | 64. $12\sqrt{60x^2}$ | 65. $(2\sqrt{3})^2$ |
| 66. $\sqrt{12} \cdot \sqrt{27}$ | 67. $(7\sqrt{5})^2$ | 68. $\sqrt{14} \cdot \sqrt{8}$ | 69. $(5\sqrt{5})^2$ | 70. $\sqrt{8x^6y^7}$ |
| 71. $\sqrt{16a^3} \cdot \sqrt{5a^2}$ | 72. $\sqrt{8} \cdot \sqrt{7}$ | 73. $\sqrt{3x} \cdot \sqrt{5x}$ | 74. $2\sqrt{5} \cdot 2\sqrt{5}$ | |
| 75. $4\sqrt{3} \cdot 2\sqrt{2}$ | 76. $6\sqrt{3} \cdot 7\sqrt{8}$ | 77. $\frac{10}{\sqrt{x}}$ | 78. $\frac{\sqrt{9}}{\sqrt{2x}}$ | |
| 79. $\frac{4}{\sqrt{20}}$ | 80. $\frac{\sqrt{12x}}{\sqrt{27x}}$ | 81. $\frac{3\sqrt{7}}{\sqrt{20x}}$ | 82. $\frac{4\sqrt{5}}{\sqrt{8y}}$ | |