

# Practice 11-1

## Simplifying Radicals

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

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.  $\sqrt{48x^3}$

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.  $\frac{4\sqrt{5}}{\sqrt{8y}}$