Math 95 HW 20 Radical Functions Name: _____

Taken from § 7.1 in the text.

1. What are the square roots of 9?

3. What is the cube root of 8?

5. If $b^n = a$ and $b > 0$, then $\sqrt[n]{a} =$ _____.

7. Use a rational exponent to write $\sqrt[3]{a^4}$.

9. Write $a^{m/n}$ in radical notation.

In exercises 11 - 33 odd, evaluate the expression by hand. Use complex numbers when appropriate. Variables represent any real number.

11. $\sqrt{9}$

13. $\sqrt{0.36}$

15. $\sqrt{\frac{16}{25}}$

17. $\sqrt{x^2}$, $x > 0$

19. $\sqrt[3]{27}$

21. $\sqrt[3]{-64}$

23. $\sqrt[3]{\frac{8}{27}}$

25. $-\sqrt[3]{x^9}$

27. $\sqrt[3]{(2x)^6}$

29. $\sqrt[4]{81}$

31. $\sqrt[5]{-243}$

33. $\sqrt[4]{-16}$

In exercises 35 - 47 odd, use your calculator to approximate to the nearest hundredth.

35. $-\sqrt{5}$

37. $\sqrt[3]{5}$

39. $\sqrt[5]{-7}$

41. $16^{1/5}$

43. $5^{1/3}$

45. $9^{3/5}$

47. $4^{-3/7}$

In exercises 49 - 67 odd, write each expression in radical notation and simplify the expression when possible.

49. $9^{1/2}$

51. $8^{1/3}$

53. $\left(\frac{4}{9}\right)^{1/2}$

55. $(-8)^{2/3}$

57. $\left(\frac{1}{8}\right)^{-1/3}$

59. $16^{-1/4}$

61. $\left(4^{1/2}\right)^{-3}$

63. $z^{1/4}$

65. $y^{-2/5}$

67. $(3x)^{1/3}$

In exercises 79 - 101 odd, simplify the expression. Assume that all variables are positive.

79. $(x^2)^{3/2}$

81. $\sqrt[3]{x^3y^6}$

83. $\sqrt{\frac{y^4}{x^2}}$

85. $\sqrt{y^3} \cdot \sqrt[3]{y^2}$

87. $\left(\frac{x^6}{27}\right)^{2/3}$

89. $\left(\frac{x^2}{y^6}\right)^{-1/2}$

91. $\sqrt{\sqrt{y}}$

93. $(a^{-1/2})^{4/3}$

95. $\frac{(k^{1/2})^{-3}}{(k^2)^{1/4}}$

97. $\sqrt{b} \cdot \sqrt[4]{b}$

99. $p^{1/2}(p^{3/2} + p^{1/2})$

101. $\sqrt[3]{x}(\sqrt{x} - \sqrt[3]{x^2})$

In exercises 103 - 115 odd, simplify the expression. Assume that all variables are real numbers.

103. $\sqrt{(-4)^2}$

105. $\sqrt{y^2}$

107. $\sqrt{(x-5)^2}$

109. $\sqrt{x^2-2x+1}$

111. $\sqrt[4]{y^4}$

113. $\sqrt[4]{x^12}$

115. $\sqrt[5]{x^5}$