Math 65, HW 10 Section 8.1 Name: _____

Concept and Vocabulary Check:

1. The symbol $\sqrt{\ }$ is used to denote the nonnegative, or _____, square root of a number.

2. $\sqrt{81} = 9$ because _____ $= 81$.

3. In the expression $\sqrt[3]{125}$, the number 3 is called the _____ and the number 125 is called the _____.

4. $\sqrt[3]{64} = 4$ because _____ $= 64$.

5. $\sqrt[4]{16} = 2$ because _____ $= 16$.

Practice Exercises:

In Exercises 1 - 25, evaluate each expression, or state that the expression is not a real number.

1. $\sqrt{36}$

3. $-\sqrt{36}$

5. $\sqrt{-36}$

7. $\sqrt{\frac{1}{9}}$

9. $\sqrt{\frac{1}{100}}$

11. $-\sqrt{\frac{1}{36}}$

13. $\sqrt{-\frac{1}{36}}$

15. $\sqrt{0.04}$

17. $\sqrt{33-8}$

19. $\sqrt{2 \cdot 32}$

21. $\sqrt{144+25}$

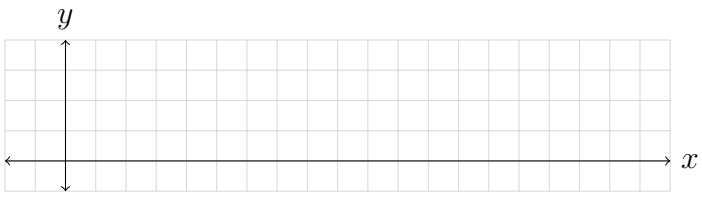
23. $\sqrt{144}+\sqrt{25}$

25. $\sqrt{25-144}$

27. Graph the equation. Begin by filling in the table and finding five solutions of the equation. Then plot these ordered pairs as points in the rectangular coordinate system and connect the points with a smooth curve.

$y = \sqrt{x-1}$

x	$y = \sqrt{x-1}$	(x, y)
1		
2		
5		
10		
17		



29. Describe one similarity and one difference between your graph in exercise 27 and the graph of $y = \sqrt{x}$, shown in **Figure 9.2** on page 568.

In exercises 47 - 73, find the indicated root or state that the expression is not a real number.

47. $\sqrt[3]{64}$

49. $\sqrt[3]{-27}$

51. $-\sqrt[3]{8}$

53. $\sqrt[3]{\frac{1}{125}}$

57. $\sqrt[4]{1}$

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

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

65. $\sqrt[5]{-1}$

67. $\sqrt[6]{-1}$

69. $-\sqrt[4]{256}$

71. $\sqrt[6]{64}$

73. $-\sqrt[5]{32}$

Applications:

85. Racing cyclists use the formula $\nu = 4\sqrt{r}$ to determine the maximum velocity, ν, in miles per hour, to turn a coner with radius r, in feet, without tipping over. What is the maximum velocity that a cyclist should travel around a corner of radius 9 feet without tipping over?

Writing in Mathematics:

92. What are the square roots of 36? Explain why each of these numbers is a square root.

93. What does the symbol $\sqrt{}$ denote? Which of your answers in exercise 92 is given by this symbol? Write the symbol needed to obtain the other answer.

95. Explain the meaning of the words *radical, radicand,* and *index.* Give an example with your explanation.