Alg. 1 Name: _____
Unit 1 Study Guide

Complete the following information for Unit 1.

1) Circle all of the following numbers that are irrational.

$\sqrt{101}$ 42 $\frac{98}{16}$ 89.396668 ....

$\sqrt{64}$ $65.4\overline{279}$ $\sqrt{17}$ -3

Rational or Irrational?

2) $1 \cdot \pi =$ _____

3) $2 \cdot \sqrt{4} =$ _____

4) $\frac{1}{3} + \sqrt{3} =$ _____

5) $\sqrt{5} - \sqrt{5} =$ _____

Simplify the following radical expressions.

6) $\sqrt{245}$ *(*factor tree)*

7) $\sqrt{12}$ *(*factor tree)*

8) $\sqrt{192u^4v^3}$ *(*factor tree)*

9) $3\sqrt{27} + 2\sqrt{24} - 3\sqrt{27}$

10) $-4\sqrt{15}(\sqrt{6} + 4)$

Convert the following to its equivalent unit.

11) 2.3 hectometers = _____centimeters

12) 301 milligrams = _____grams

13) How many feet are in 18 miles?

14) If a zebra runs at a speed of 1.5 miles per hour, what would be his equivalent speed in feet per second?

15) 182 ounces of water would be how many gallons?

Simplify each expression.

16) $(6n^4 - 5n) - (8n - 5n^4 + 6)$

17) $2n(2n^2 - 6n - 6)$

18) $(4b^4 + b - 6) + (1 - b^3 - 5b^4)$

19) $(8x - 6)^2$

20) $(n^2 - 8n^4 + 5n^3) - (7n + 7n^2 + 3n^4 - 4n^3)$

21) $(2n - 5)(n - 7)$