

Math103 Intermediate Algebra – Arrowsmith – PreTest 4

Name \_\_\_\_\_

Each of the 18 questions is worth 5 points plus 1 points for each of 10 homework problems for a total of 100

**Simplify the root.**

1)  $\sqrt[3]{x27}$

**Simplify by first converting to rational exponents. Assume that all variables represent positive real numbers.**

2)  $\sqrt[4]{100s18}$

**Use the rules of exponents to simplify the expression. Write the answer with positive exponents. Assume that all variables represent positive real numbers.**

3)  $\frac{x^{1/2}}{x^{5/4} \cdot x^{-3}}$

**Express the radical in simplified form.**

4)  $\sqrt[3]{864}$

**Express the radical in simplified form. Assume that all variables represent positive real numbers.**

5)  $\sqrt[3]{\frac{y^{10}}{125}}$

**Simplify. Assume that all variables represent positive real numbers.**

6)  $4\sqrt{7} + 5\sqrt{63}$

$$7) 9\sqrt[3]{m^7p^5} - 7m^2p\sqrt[3]{mp^2}$$

**Multiply, then simplify the product. Assume that all variables represent positive real numbers.**

$$8) (3 - 5\sqrt{2})^2$$

**Rationalize the denominator. Assume that all variables represent positive real numbers and that the denominator is not zero.**

$$9) \frac{\sqrt{7}}{7\sqrt{3} - \sqrt{7}}$$

**Solve the equation.**

10)  $\sqrt{2k + 1} = 13$

**Solve this equation.**

11)  $\sqrt{3x + 10} = 5 - 2x$

**Multiply or divide as indicated.**

12)  $\frac{\sqrt{-144}}{\sqrt{-4}}$

**Add or subtract as indicated. Write your answer in the form  $a + bi$ .**

13)  $[(4 + 6i) - (10 + 7i)] - (5 - 6i)$

**Use the quadratic formula to solve the equation. (All solutions are real numbers.)**

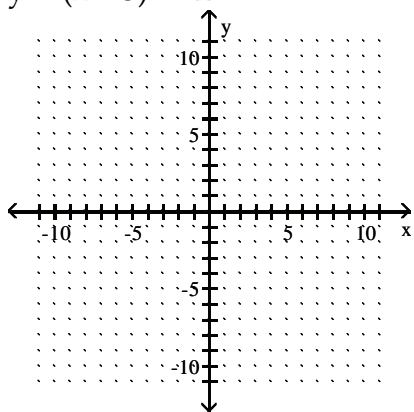
14)  $x^2 = 3 - 4x$

**Use the quadratic formula to solve the equation.**

15)  $x^2 - \frac{2}{5}x = -\frac{7}{10}$

**Sketch the graph of the parabola.**

16)  $y = (x - 3)^2 - 2$



**Identify the vertex of the given parabola.**

17)  $f(x) = (x + 2)^2 + 9$

**Sketch the graph of the parabola.**

18)  $y = x^2 - 2$

