

EXAM 4
Math 101
June 30, 2005

Name _____

Do all work neatly. Show all of your work. Circle your final answer where appropriate.

1. Simplify the following. Express any answer using only positive exponents:

(a) $\sqrt{72x^5y}$.

(b) $\sqrt[4]{256u^6v^9w^{12}}$.

(c) $\left(\frac{9y^{-2}}{7^4x^{-6}}\right)^{-\frac{1}{2}}$

(d) $\frac{\sqrt[3]{64m^7n^5}}{\sqrt[3]{2mn^3}}$

(e) $\sqrt[6]{729a^7b^{18}c^3}$

2. Simplify:

(a) $(3 - \sqrt{5})(3 + \sqrt{5})$.

(b) $(8^{\frac{8}{3}})^{\frac{6}{2}}$.

(c) $\sqrt{20} - 2\sqrt{18} + \sqrt{8}$.

(d) $y^{\frac{2}{5}} \cdot y^{\frac{7}{10}} \cdot y^{\frac{9}{10}}$

(e) $2\sqrt[3]{4z}(5\sqrt[3]{2z^2} - 7\sqrt[3]{11z})$

3. Solve by the method indicated:

(a) $3x^2 - 18x = 21$ by factoring

(b) $(x + 2)^2 = 64$ by using the square root property

(c) $4x^2 + 20x + 25 = 4$ by using the square root property

(d) $3x^2 + 6x = 24$ by completing the square

(e) $3x^2 = 5x + 8$ by the quadratic formula.

4. Solve for x . (You may use any method.)

(a) $\sqrt{2x+3} - 3 = 6$.

(b) $x^2 + 13x + 40 = 0$.

(c) $3x^2 - 4x = 5$.

(d) $-4x^2 + 2x + 1 = 0$.

(e) $3x^2 - 5x - 22 = 0$.