

Name: _____
MAT1275CO College Algebra and Trigonometry - Section D103
Exam 3 - Version 1

Directions: Please write all your answers **CLEARLY** in the space provided. **SHOW ALL OF YOUR WORK.** Answers without work shown when necessary will receive no credit. Your final answers should be **BOXED** and written in the provided spaces. Please make clear notes on the front of the page to point to any work on the back of the page that you want graded.

1. Simplify completely.

(a) (+4 points) $\frac{1}{x} + \frac{5}{2x}$

(b) (+8 points) $\frac{7-x}{x^2+x-6} + \frac{2}{x+3}$

(c) (+8 points) $\frac{\frac{1}{x} + \frac{1}{y}}{\frac{x}{y} - \frac{y}{x}}$

2. Simplify completely. Use absolute values and standard form $(a + bi)$ when appropriate. DO NOT list “DNE” or “not real” as an answer. Denominators of rational expressions should not contain radical signs nor imaginary numbers.

(a) (+4 points) $\sqrt{25p^5q^6}$

(b) (+6 points) $\sqrt{\frac{80x^3}{y^{10}}}$

(c) (+6 points) $\frac{\sqrt{98z^9}}{\sqrt{2z}}$

(d) (+4 points) $27^{\frac{2}{3}}$

(e) (+6 points) $\sqrt[7]{x} \sqrt[4]{x}$

(f) (+8 points) $\frac{\sqrt{2}}{3+\sqrt{2}}$

(g) (+8 points) $(3 + \sqrt{-5})(2 + \sqrt{-5})$

(h) (+6 points) $\frac{2+4i}{5i}$

3. Solve for x . If there are multiple solutions, list all solutions.

(a) (+4 points) $2x + 8 = 0$

(b) (+6 points) $\frac{x}{2} + \frac{x+2}{6} = \frac{1}{2}$

(c) (+4 points) $5(x + 3)(x - 2) = 0$

(d) (+6 points) $x^2 - 11x + 24 = 0$

4. (+4 points) Is $x^3 - 2x + 4 = x^3 + 2x^2 + x - 1$ a quadratic equation? Why or why not?

5. (+8 points) Ashley and Samantha are saving money. Ashley starts with \$60 and saves \$3 every day. Samantha starts with \$10 and saves \$8 per day. How many days will pass before Ashley and Samantha have the same amount of money saved?

BONUS: The length of a rectangle is three times the width. The perimeter is 24 feet. What are the dimensions of the rectangle?
