Name: _____

MAT1275CO College Algebra and Trigonometry - Section D103

Exam 2 - 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 $\boxed{\textbf{BOXED}}$ 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. Find the GCF of the following terms.

   (a) (+6 points) $48xy^4, 72x^3y^2, 120x^2y^3$

   GCF: _____

   (b) (+6 points) $m^8n^6p^{12}, m^{10}n^8p^9$

   GCF: _____

2. (+8 points) Factor by grouping.
$$2x^2 + 4x + 3x + 6$$

   Factored Polynomial: _____

3. Factor. If factoring is not possible, state that the polynomial is prime.

   (a) (+8 points) $x^2 + 10xy + 24y^2$

   Factored Polynomial: _____

   (b) (+8 points) $x^2 + 5x + 7$

   Factored Polynomial: _____

   (c) (+8 points) $x^2 + 6x - 7$

   Factored Polynomial: _____

(d) (+8 points) $8x^2 + 2x - 3$

Factored Polynomial: _____

4. Simplify the rational expression completely.

(a) (+4 points) $\frac{3x-4}{4-3x}$

Simplified Expression: _____

(b) (+6 points) $\frac{10x^2-50x}{15x}$

Simplified Expression: _____

(c) (+6 points) $\frac{x^2-5x}{4x-20}$

Simplified Expression: _____

(d) (+8 points) $\frac{2x^2-8}{2x+4}$

Simplified Expression: _____

5. Multiply or divide the rational expressions and simplify completely.

(a) (+6 points) $\frac{3a^7}{b^5} \div \frac{a^4}{b^9}$

Simplified Quotient: _____

(b) (+8 points) $\frac{6a^3-4a^2}{3a^3} \cdot \frac{12a}{3a-2}$

Simplified Product: _____

(c) (+10 points) $\frac{2x+3}{x+7} \cdot \frac{3x+21}{4x^2+8x+3}$

Simplified Product: _____

BONUS: Factor the following polynomial completely.

$$16 - u^4$$

Factored Polynomial: _____