Name: _____ **Sample Test 1**

MAT1275 College Algebra and Trigonometry

Instructions: **Show all work.** Only algebraic methods and solutions are allowed. **BOX all answers.** Answers are to be written in simplest **rational form**. Show all answers with positive integer exponents. Supply decimal answers only when asked for the nearest decimal place. You may not use a calculator, phone, or other electronic device. **GOOD LUCK!**

1. [5] Simplify. $-50 \div 10(7-12)^3$

2. [5] Evaluate when $x = -4$, $4x^2 - 7x - 2$

3. [10] Simplify $\left(\frac{5a^{-8}r^{-10}}{3a^{-3}r^2p^0}\right)^{-4}$. Write your answer without using negative exponents.

4. [10] Multiply. $(3x-10)(x^2-5x+11)$

5. [10] Divide. $\frac{54b^3c^{17}-72b^9c^{11}+6b^2c^3}{6b^2c^3}$

6. [10] Divide. $\frac{2x^3-2x^2-13x+11}{x+3}$

7. [10] Factor completely. $5x^{14} - 20x^{13} - 45x^{12} + 180x^{11}$

8. [10] Factor completely. $24a^3b^2 + 42a^2b^2 - 45ab^2$

9. [20] Simplify the expression. $\frac{3x^8+24x^7}{x^2+4x-21} \div \frac{x^2-64}{x-3}$

10. [10] Simplify the expression. $\frac{c-11}{c+9} - \frac{6c-15}{6c+54}$

11. [10] Simplify the complex fraction completely.

A. $\dfrac{21 - \frac{8}{3x}}{\frac{8}{21x} - 3}$ B. $\dfrac{\frac{7}{y^2} + \frac{1}{y}}{\frac{49}{y^2} - 1}$ C. $\dfrac{\frac{4}{t} - \frac{3}{t-5}}{\frac{4}{t-5} - \frac{3}{t}}$

Answer Key:

1. 625
2. 90
3. $\frac{81a^{20}r^{48}}{625}$
4. $3x^3 - 25x^2 + 83x - 110$
5. $9bc^{14} - 12b^7c^8 + 1$
6. $2x^2 - 8x + 11 - \frac{22}{x+3}$ or $2x^2 - 8x + 11\ R: -22$
7. $5x^{11}(x-4)(x+3)(x-3)$
8. $3ab^2(4a-3)(2a+5)$
9. $\frac{3x^7}{(x+7)(x-8)}$
10. $-\frac{17}{2(c+9)}$
11. A. -7 B. $\frac{1}{7-y}$ C. $\frac{t-20}{t+15}$