

YOUR NAME: _____

George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Divide and reduce to lowest terms:

$$\frac{3x^2 - 2x - 16}{2x^2 + 3x - 2} \div \frac{9x^2 - 64}{6x + 16}.$$

2. Add and reduce to lowest terms:

$$\frac{6x - 11}{x^2 + x - 12} - \frac{5}{x + 4}.$$

3. Simplify the complex fraction $\frac{x^3 - y^3}{x^{-3} - y^{-3}}$.

4. Noëlle can solve a puzzle by herself in 20 minutes. Delight can solve the same puzzle by herself in x minutes. Write a rational expression $T(x)$ that gives the portion of the puzzle that they can solve working together for 5 minutes.