ACMAT100 Spring 2025
Professor Manguba-Glover
Section 6.1-6.2 Homework (HW 13) Name: _____

Show all work and circle/box your simplified answers. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for credit. Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

Due at the start of next class (unless otherwise arranged with Professor MG).

(1) Find the domain and write in interval notation: $f(x) = \dfrac{x^2 - x + 8}{x^2 - 4}$

(2) Find the domain and write in interval notation: $f(x) = \dfrac{x - 3}{x^3 - 2x^2 - 9x + 18}$

(3) Simplify the rational expression: $\dfrac{x^2 + 5x - 14}{x^2 + 4x - 12}$

(4) Simplify the rational expression: $\dfrac{6x^2 - 17x - 14}{49 - 4x^2}$

(5) Perform the operation: $\dfrac{x^2 + 3x - 10}{4x} \cdot \dfrac{x^2 - 3x}{x^2 - 5x + 6}$

(6) Perform the operation: $\dfrac{x^2 + 10x + 21}{x + 7} \div \dfrac{x^2 - 5x - 24}{x^3}$

(7) Perform the operation: $\dfrac{3x^2 - x - 4}{4x^2 + 5x + 1} \div \dfrac{6x^2 + x - 12}{2x^2 - 5x - 12}$

(8) Perform the operation: $\dfrac{3}{8x^4y} + \dfrac{1}{5x^2y^3}$

(9) Perform the operation: $\dfrac{5x}{x^2 - 9x + 8} - \dfrac{3(x + 2)}{x^2 - 6x - 16}$

(10) Perform the operation: $\dfrac{x - 1}{x - 2} + \dfrac{x - 6}{x^2 - 4} - \dfrac{x + 1}{x + 2}$