ACMAT100 Spring 2026
Professor Manguba-Glover
Section 6.1-6.2 Homework (HW 15) Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

(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: $f(x) = \dfrac{x - 3}{2x^2 + 3x + 1}$

(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: $\dfrac{x^2 - 9x + 18}{x^2 - 5x - 6} \cdot \dfrac{x^2 - 1}{x^2 - 9}$

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

(7) Perform the operation: $\dfrac{x^2 - 9}{x^2 - 6x + 9} \cdot \dfrac{6x - 18}{x + 3}$

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

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

(10) Perform the operation: $\dfrac{x^2 - 64}{8x - 8} \div \dfrac{x^2 + 16x + 64}{x^2 + 7x - 8}$