

MATH 2010 FALL 2026 HOMEWORK #1

Write clearly. Both questions carry equal weight.

For each proposition, present a formal proof. For the first, you must use the definitions and proof methods covered in class.

- (1) Consider integers m and n . If $3m - 5n - 3$ is even, then m and n have opposite parity.

- (2) If x and y are real numbers, then $xy \leq \frac{1}{4}x^2 + y^2$.