Name: ______________________

- Keep phones off and out sight.
- Do not talk during the quiz.
- No calculators, notes, books, or other aids.
- Show all work.

1. Consider the function \( f(x) = \frac{x}{x^2 + 4} \).
   
   (a) Determine the intervals on which \( f(x) \) is increasing and decreasing.

   (b) Find the \( x \)-coordinates of any local max(s) and min(s) of \( f(x) \).
2. Consider the function \( f(x) = x^3 - 3x^2 - 9x + 2 \).

(a) Find the \( x \)-coordinates of any local max(s) and min(s) of \( f(x) \).

(b) Find the intervals on which \( f(x) \) is **concave up** and **concave down**.

(c) Find the \( x \)-coordinates of any inflection point(s) of \( y = f(x) \).