Name: _____

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

1. Consider the function $f(x) = \dfrac{x}{x^2+4}$.

   (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 $y = f(x)$.