Math 108-01
Summer 2024
Dr. Lily Yen

Quiz Five

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Score: ___/10

Problem 1: Use the limit definition of continuity to find a value c that makes the piece-wise defined function continuous everywhere. Draw your resulting function to check. From the graph, is the function differentiable at $x = 2$?

$$f(x) = \begin{cases} x^2 - 1, & x \leq 2 \\ \sqrt{x - c}, & x > 2 \end{cases}$$

Score: /4

Problem 2: Answer the following using derivative rules. Do NOT simplify.

a. Find $g'(x)$ where $g(x) = \left(4x^3 + \dfrac{1}{x^3} - 50\right)(x^2 - 2\sqrt{x} + e)$

Score: /3

b. Find $d(f(x))/dx$ where

$$f(x) = \frac{23 + \sqrt{x} - x^5}{\left(1 - \dfrac{2}{x^3}\right)}$$

Score: /3