Math 108
Spring 2024
Dr. Lily Yen

Quiz 4
Show all your work

Name: _____

Number: _____

Signature: _____

Score: ___/10

Problem 1: The width of a rectangle is shrinking at a rate of $1\,\mathrm{cm/min}$ while the length of the rectangle is increasing at a rate of $3\,\mathrm{cm/min}$. Find the rate at which the area of the rectangle changes when the width is $12\,\mathrm{cm}$ and the length is $40\,\mathrm{cm}$.

Score: /3

Problem 2: Use the technique of linear approximation to estimate $\cos(0.03)$ within 0.01 accuracy. State clearly your $f(x)$ and anchor point a before applying Linear Approximation Formula. Draw the graph and specify the interval for x around $x = a$ where accuracy is attained.

Score: /4

Problem 3: For the following function, find the absolute extrema over the specified interval and state where those values occur. Draw the function.

$$f(x) = 2x^2 - 5x^{4/5}, \quad x \in [0, 3]$$

Score: /3