Math 108
Spring 2024
Dr. Lily Yen

Quiz Four

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Name: _____
Number: _____
Signature: _____
Score: ___/10

Problem 1: The length of a rectangle is shrinking at a rate of 2 cm/min while the width of the rectangle is increasing at a rate of 1 cm/min. Find the rate at which the area of the rectangle changes when the length is 15 cm and the width is 10 cm.

Score: /3

Problem 2: Use the technique of linear approximation to estimate $\sin(0.02)$ 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.

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

Score: /3