

King Fahd University of Petroleum & Minerals
Department of Mathematics and Statistics
Math101/Calculus I
Quiz 2
Three Problems ¹

Problem 1 (5 points)

Prove using the ϵ and δ definition that

$$\lim_{x \rightarrow 1} \frac{2 + 4x}{3} = 2.$$

Problem 2 (5 points)

Find the value of the parameter a for which the following function is continuous everywhere;

$$f(x) = \begin{cases} x + a, & \text{if } x \leq 0, \\ e^x, & \text{if } x > 0. \end{cases}$$

Problem 3 (5 points)

Consider the function $f(x) = \frac{1}{x}$.

a How many asymptotes does the function have?

b Find the expression of its derivative using limits.

¹The quiz lasts 20 minutes.