King Fahd University of Petroleum & Minerals
Department of Mathematics and Statistics
Math101/Calculus I
Quiz 2
Three Problems, October 11^{th}, 2015 [1]

Problem 1 **(5 points)**

Prove using the ϵ and δ definition that

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

Problem 2 **(5 points)**

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

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

Problem 3 **(5 points)**

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

a How many assymptotes does the function have?

b Find the expression of its derivative using limits.

[1] The quiz lasts 20 minutes.