



**AFE BABALOLA UNIVERSITY, ADO-EKITI, EKITI STATE, NIGERIA  
COLLEGE OF ENGINEERING**

**BACHELOR OF ENGINEERING ASSIGNMENT I**

**ENG 281: Engineering Mathematics I**

**Session:** 2019/2020

**Semester:** First

**Unit:** 3

**Duration:** 3 days

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**Instruction:** Answer all the questions.

**Question 1 [20 Marks]**

- (a) Show that the limit of the function given in Equation (1.1) as  $x$  approaches  $0$  is  $\frac{a}{b}$ .

$$f(x) = \frac{\sin ax}{bx} \quad (1.1)$$

- (b) The model of a system has been developed to be as given in Equation (1.2).

$$f(x) = 5x - 21 \quad (1.2)$$

Given that  $\delta = 0.1$  and  $\Delta\delta = 0.01$ , demonstrate, in tabular form, that the limit of the model as  $x \rightarrow 6$  is equal to 9.

- (c) Show whether the function given in Equation (1.3) is continuous on the interval  $[-5, 5]$ .

$$f(x) = (25 - x^2)^{\frac{1}{2}} \quad (1.3)$$