

Department of Mathematics and Statistics KFUPM
MATH 101-06 Quiz#1, Time: 40 mins

Student's Name: _____ ID: _____ Section No: _____

Q.No.1:- (5 points) Sketch the graph of an example of a function f that satisfies all of the given conditions.

$$\lim_{x \rightarrow 0^-} f(x) = 2$$

$$\lim_{x \rightarrow 0^+} f(x) = 0$$

$$f(0) = 2$$

$$\lim_{x \rightarrow 4^-} f(x) = 3$$

$$\lim_{x \rightarrow 4^+} f(x) = 3$$

$$f(4) = 1$$

Q.No.2:- Find the following limit and give reason(s) for every step.

$$\lim_{x \rightarrow 2^+} \left[\frac{x^2 - 2x - 8}{x^2 - 5x + 6} \right]$$

Final Answer (1 point): _____

Work Shown (4 points):

Q.No.3:- Evaluate the limit, if it exists. Justify each step by indicating the appropriate Limit Law(s).

$$\lim_{x \rightarrow -1} \frac{2x^2 + 3x + 1}{x^2 - 2x - 3}$$

Final Answer (1 point): _____

Work Shown (4 points):

Q.No.4:- Evaluate the limit, if it exists. Justify each step by indicating the appropriate Limit Law(s).

$$\lim_{h \rightarrow 0} \frac{(3 + h)^{-1} - 3^{-1}}{h}$$

Final Answer (**1 point**): _____

Work Shown (**4 points**):

Q.No.5:- Find a number δ such that

if $|x - 4| < \delta$ then $|\sqrt{x} - 2| < 0.4$

Final Answer (1 point): _____

Work Shown (4 points):