

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematics and Statistics**  
**MATH 101 – Quiz 2** **Term 092**

NAME: \_\_\_\_\_ ID: \_\_\_\_\_ Section: \_\_\_\_\_

**Exercise 1**

Let  $f(x) = \begin{cases} 2 + x^2 & \text{if } x \leq 0 \\ 1 - x & \text{if } 0 < x < 2 \\ (x - 1)^2 & \text{if } x \geq 2 \end{cases}$

(a) Find  $\lim_{x \rightarrow 0} f(x)$ .

(b) Find  $\lim_{x \rightarrow 2} f(x)$ .

(c) Find the numbers at which  $f$  is discontinuous (Justify).

(d) Find the numbers at which  $f$  is discontinuous but continuous from the right (Justify).

(e) Find the numbers at which  $f$  is discontinuous but continuous from the left (Justify).

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**Exercise 2**

Find  $\lim_{x \rightarrow -\infty} x + \sqrt{x^2 + 2x} =$

