

Instructor: Dr. Rola Alseidi	Philadelphia University (P. U) Faculty/College of Science Department of Mathematics Quiz 2	Academic Year: 2022/2023. Semester: Second. Date: 31/5/2023. Course Title: Real Analysis (1) Duration of Quiz: 15 minutes.
Name:		
Student No. :		Section:

- The exam consists of **2 pages**. Make sure you have all of them.

1. (4 points) use $\epsilon - \delta$ definition to show

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

2. (4 points) Show that

$$\lim_{x \rightarrow 0} \sin\left(\frac{1}{x}\right)$$

D.N.E

3. (2 points) Give a counter example for the following statement, explain how your example works.

Let $c \in \mathbb{R}$ and $f : \mathbb{R} \rightarrow \mathbb{R}$. If $\lim_{x \rightarrow c} (f(x))^2 = L, L \neq 0$ then $\lim_{x \rightarrow c} f(x)$ exists.