MATH 101
QUIZ 1A

Name: **Serial No.** **section:**

1. Evaluate the limit if it exist. If the limit does not exist explain why?

$$\lim_{x \to -2/3} \frac{3x+2}{|6x+4|}$$

2. Consider the function $f(x) = \begin{cases} 2x^2 & \text{if} \quad x \geq -1 \\ x+2 & \text{if} \quad x < -1 \end{cases}$

Find a number $\delta > 0$ so that if $0 < |x| < \delta$, then $|f(x) - L| < 0.01$

3. Evaluate $\lim_{x \to 0^+} \arctan\left(\frac{x + \sqrt{x}}{\sqrt{x}}\right)$

4. Show that there is a zero of the equation $x^3 - 2x + 3 = 0$ between -2 and -1. (What is the name of the Theorem you used here?)