Quiz 1 **Sec: 17**

Name: **ID#:** **Sr. No.**

Evaluate the limits, if exist.

a. $\lim_{x\to -1} \dfrac{2x^2+3x+1}{x^2-2x-3}$

b. $\lim_{h\to 0} \dfrac{(3+h)^{-1}-3^{-1}}{h}$

c. $\lim_{h\to 0} \dfrac{\sqrt{49+h}-7}{h\sqrt{1-h}}$

2. Use the Squeeze Theorem to find $\lim_{x \to 1^-} f(x)/g(x)$, if:

$$4x - 9 \leq f(x) \leq x^2 - 4x - 2 \quad \text{and} \quad 3x - \cos(\pi x) \leq g(x) \leq 4[\![x + 1]\!]$$

for $x \geq 0$.

3. Let $f(x) = \sqrt{7 - 3x}$, $a = 1$, and $L = 2$. Find a real number $\delta > 0$ that works for $\varepsilon = 1$, such that:

$$0 < |x - a| < \delta \quad \Rightarrow \quad |f(x) - L| < \varepsilon$$