QUIZ VII

First Name: Last Name:

1. (4 points)

Compute the following limits. Show all work and **state any theorems or special limits used**.

- $\lim\limits_{x \to \infty} x \cdot e^{-5x}$

- $\lim\limits_{x \to 3} \dfrac{x^2 - 9}{x^2 + 9}$

2. (4 points)

Prove that $\dfrac{d}{dx}\left[\arccos(x)\right] = -\dfrac{1}{\sqrt{1-x^2}}$ for $x \in (-1, 1)$.

3. (2 points)

Compute $\dfrac{d}{dx}\left[x^3 \cdot \arcsin(3x)\right]$. Show sufficient work to **communicate** your process.