King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 101 (121) - Quiz 1

Name: ID: Serial No.:

1. Use the Squeeze Theorem to show that

$$\lim_{x\to 0^+}\left(\sqrt{x}e^{\cos(\frac{\pi}{\sqrt{x}})}+2\right)=2$$

2. Let $f(x)=\sqrt{x-3}$ to find $\delta>0$ such that if $0<|x-7|<\delta$, then $|f(x)-2|<1$.

3. Find the average rate of change of $f(x) = 2 + \sin x$ over the interval $[\frac{-\pi}{2}, \frac{\pi}{2}]$.

4. Evaluate

(a) $\lim_{x \to -2} \dfrac{x+2}{\sqrt{x^2+5}-3}$,

(b) $\lim_{x \to 0^-} \dfrac{|x| + [x]}{x+1}$