

Department of Mathematics and Statistics
King Fahd University of Petroleum and Minerals
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Math 101-102

Quiz # : I

Name : = ----- ID# -----

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Q 1 Using (ε, δ) -definition prove that $\lim_{x \rightarrow 3} \sqrt{x+1} = 2$. Find the maximum value of δ when $\varepsilon = 1$.

Q # 2 Let $f(x) = \frac{(x-5)(x^2-5x+6)(x+64)}{(x+1)(x-3)(x+5)}$

1. Evaluate $\lim_{x \rightarrow 2} f(x)$ and $\lim_{x \rightarrow -1} f(x)$
2. Find all the vertical asymptotes (VA) of the function
3. Find all HA of the function

Q # 3 Let $f(x) = \frac{\sqrt{5x^2+4}}{x-3}$

Evaluate

1. $\lim_{x \rightarrow \infty} f(x)$
2. $\lim_{x \rightarrow -\infty} f(x)$
3. Vertical asymptotes