

King Fahd University Of Petroleum and Minerals
College of Sciences
Mathematics Department
Math 101-19
Quiz# 5

Name:..... ID#:..... Serial #:.....

1. Find $\frac{dy}{dx}$ if

(a) $y = (x^3 - 2x)^{\ln x}$

(b) $y = \log_{\frac{1}{x}} e$

(c) $x^3 + x \tan^{-1} y = e^y$

2. Evaluate

(a) $\lim_{x \rightarrow +\infty} (x + x^3)$

(b) $\lim_{x \rightarrow 0^+} \left(\frac{1}{x} - \frac{1}{\sin x} \right)$

(c) $\lim_{x \rightarrow +\infty} \left(1 - \frac{3}{x} \right)^x$