

Serial No.: _____ Student Name: _____ Student Number: _____
Instructor: M. Z. Abu-Sbeih Math 101- Q3 Date: 22-7-2008

Problem 1: Differentiate each of the following functions (**DO NOT simplify the answer**)

1. $y = e^{2x} \sec x$

2. $y = 5^{\cot 2x} + \pi^3$

3. $y = \tan^3(\sin x^4)$

Problem 2: If it exists, find the limit.

a) $\lim_{\theta \rightarrow 0} \cos\left(\frac{\pi\theta}{\sin \theta}\right)$

b) $\lim_{h \rightarrow 0} \frac{e^h - 1}{h}$