

King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
MATH 101 – Quiz 5 **Term 082**

NAME: _____ ID: _____

Exercise 1. Use linear approximation to estimate $\tan 46^\circ$ (give the answer as a function of π)

Exercise 2. Let f and g be two functions such that:

- f and g are continuous on $[a, b]$
- f and g are differentiable on (a, b)
- $f'(x) < g'(x)$ for all x in (a, b)
- $f(b) = g(b)$

Prove that $g(a) < f(a)$ [**Hint:** apply the Mean Value Theorem to the function $h = f - g$].