Serial No.:_____ Student Name:_____ Student Number: _____

Instructor: M. Z. Abu-Sbeih Math 102- Q3 Date: 31-3-2010

Problem 1: (11 points) Consider the function $f(x) = (x-3)^2$ on the interval $[2,5]$.

(a) Find the average value f_{avg} of the function on the given interval.

(b) Find a number c such that $f(c) = f_{avg}$

Problem 2: (14 points) Set up, **but do not evaluate**, an integral for the volume of the solid generated by rotating the region bounded by $y = \sin x$ and $y = \cos x$ from $x = \frac{\pi}{4}$ to $x = \frac{5\pi}{4}$ about

(a) $y-$ axis.

(b) The line $y = -1$