MATH 121 Section 02
Homework 5

Below is a list of selected problems from Stewart's Calculus. You will have until Friday March 14 to finish the problem set. The first problems are suggested exercises and you do not need to turn them in. The latter set you should write up carefully and neatly as they will be graded. It is in your best interest to work all of the problems. All problems from the homework are fair game on the exams! You are encouraged to work in groups, but you must write up your own solutions. I will be available during office hours for help.

1 Suggested Problems

§3.9) 1, 3, 11, 15, 19, 21, 23, 25

§4.1) 1-41 odd, 45-55 odd

§4.2) 1,3, 7, 11, 13, 17, 19, 21, 23, 25

2 Required Problems

1) A window has the shape of a square surmounted by a semicircle. The base of the window is measured as having width 60 cm with a possible error in measurement of 0.1 cm. se differentials to estimate the maximum error possible in computing the area of the window.

2) Find the absolute maximum and absolute minimum values of $f(x) = (x^2 - 1)^3$ on the interval $[-1, 2]$.

3) Suppose that $3 \leq f'(x) \leq 5$ for all values of x. Show that $18 \leq f(8) - f(2) \leq 30$.

4) A number a is called a **fixed point** of a function f if $f(a) = a$. Prove that if $f'(x) \neq 1$ for all real numbers x, then f has at most one fixed point.