Math 1225  Homework 8 sec 4.1-4.2
Show all work. Staple all multiple papers. Do not use ink.

Problem 1:
Given that $f(x) = x^4 - 8x^2 + 1$ find the absolute (global) maximum and minimum over the following intervals

1) [1, 3]
2) [-3, 1]
3) [-1, 4]
4) [-4, 3]

Problem 2: If $f(x) = 5 + 3(x - 1)^{2/3}$, does Roll’s Theorem hold over the interval [0, 2]?

Problem 3:
If $f(x) = 4x^2 + 8x + 2$, use the MVT to find the value in the interval [-1, 0] where instantaneous rate of change is equal to average rate of change.

Problem 4: A trucker handed in a ticket at the toll booth showing that in 2 hours she had covered 159 miles on a toll road with speed limit 65mi/hr. The trucker received a citation for speeding. Why? Justify using the MVT. Give a detailed justification.