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

Instructor: M. Z. Abu-Sbeih Math - 132.4 Quiz No. 4 Date: 21-11-2007.

Problem 1: (5 points) A rectangular field is to be enclosed on all sides with a fence. Fencing material costs \$3 per foot for the two sides, and \$6 per foot for the other two sides. Find the maximum area that can be enclosed for \$2400.

Problem 2: (15 points) Consider the function $y = x^4 - 4x^3$. Find

1. The intercepts.

2. The asymptotes (If any exists).

3. Critical values and critical points.

4. Intervals on which the function is increasing and those on which it is decreasing.

5. Relative extrema (using the First Derivative Test).

6. Intervals on which the graph is concave up and those on which it is concave down.

7. Inflection points.

8. Use the Second Derivative Test to check the relative extrema of the function.

9. Sketch the graph of the function. Clearly indicate the critical numbers, extrema and inflection points.