MAT 161 Names_____
Problem Solving Session #6

1. Use calculus to find the coordinates of all stationary points of $f(x) = x^4 - 8x^2 + 3$.

2. Use calculus to find the maximum and minimum values of the function $f(x) = \frac{x^4}{2} + 2x^3 - 10x^2 + 5$ on the interval [-1,4]

3. Use your knowledge of calculus to find the dimensions of a closed box that has the least surface area subject to the following constraints. The box must be four times as long as it is wide and have a volume of 1680 cubic inches.

4. Find the anti-derivatives:

a) $f(x) = 2x^3 + 3x^2 - e^x$

c) $f(x) = 2\sqrt{x^3}$

b) $f(x) = \cos(x)$

d) $f(x) = \dfrac{5}{x^3}$