MA 234-02 **Quiz #7** **6 November 1991**

This is a take-home quiz. It is due Monday, November 11, at Noon (the beginning of class). Work each problem in detail using the max-min procedures discussed in class.

1. Determine all the critical points of the function $f(x, y) = 4xy - x^4 - y^4$ and classify them according to type. *(6 points)*

2. Determine the absolute extrema of the function $f(x, y) = x^2 - y^2$ on the region $R = \{(x, y) | x^2 + y^2 \leq 4\}$. *(7 points)*

3. Find the largest volume of a closed rectangular box having surface area 600 cm^2. *(7 points)*