Math 2123 - Math Center Worksheet
Section 8.2

1. Find and *clearly* classify all critical points of $f(x, y) = x^3 - 6xy + 8y^3$.

Math 2123 - Math Center Worksheet
Section 8.3

A resort in St. Lucia in the Caribbean Islands has 58 rooms. The weekly profit for the resort during the peak season can be modeled by
$P(f, h) = 510f + 240h + 10fh - 10f^2 - 10h^2$ dollars, where f is the number of family packages and h is the number of honeymoon packages the resort sells each week. Each family package includes 2 rooms and each honeymoon package has 1 room, which gives the following model for occupancy: $R(f, h) = 2f + h$ rooms, where f is the number of family packages and h is the number of honeymoon packages.

a. Find the maximum profit under the given space constraint. State your answer in fraction form or include <u>all</u> decimal accuracy given on your calculator.

b. Use close points to show that your answer to part (a) is a constrained maximum. Include <u>all</u> decimal accuracy given on your calculator or use fractions in your close point analysis.