King Fahd University of Petroleum and Minerals

MATH 201 QUIZ #4 Term 142

Name:	ID:	Sec:

Q1. Find the **local** maximum and minimum values and saddle point(s) of the function

$$f(x,y) = 2x^3 + xy^2 + 5x^2 + y^2$$

Q2 Find the points on the cone $z^2 = x^2 + y^2$ that is closest to the point (4,2,0)

Q3 Use Lagrange multipliers to find the **maximum and minimum** values of the function $f(x, y, z) = xyz$ subject to the **constraint** $x^2 + 2y^2 + 3z^2 = 6$