1. **f(x,y) = 4x3 + y3 - 6xy in R**

;

Solving for 0,

(0, 0) ; (.8, 1.28)*(rounding x)* are the stationary points.

H(x,y) =

H(0, 0) = , det(H(0,0)) = 0 i.e. **test inconclusive. The point can be a saddle point, maxima or minima.**

H(.8, 1.28) = , det(H(1,2)) = 111.456 **> 0** and **fxx(1,2) = 24 > 0.** So, at **(1, 2) there is a minima.**

1. **f(x,y,z) = z4+ z2 + x3 + y3 -5xy in R3**

; ;

Solving for 0,

(0, 0, 0); (5/3, 5/3, 0) are the stationary points.

H(x,y,z) =

H(0,0,0) = , det(H(0,0,0)) = 0 **i.e. test inconclusive. The point can be a saddle point, maxima or minima.**

H(5/3, 5/3, 0) =

det(H(5/3, 5/3, 0)) = 0 **i.e. test inconclusive. The point can be a saddle point, maxima or minima.**