## Mallis Supervision Work 9

$$\frac{\partial^2 R}{\partial y^2} = 6x + 48y$$

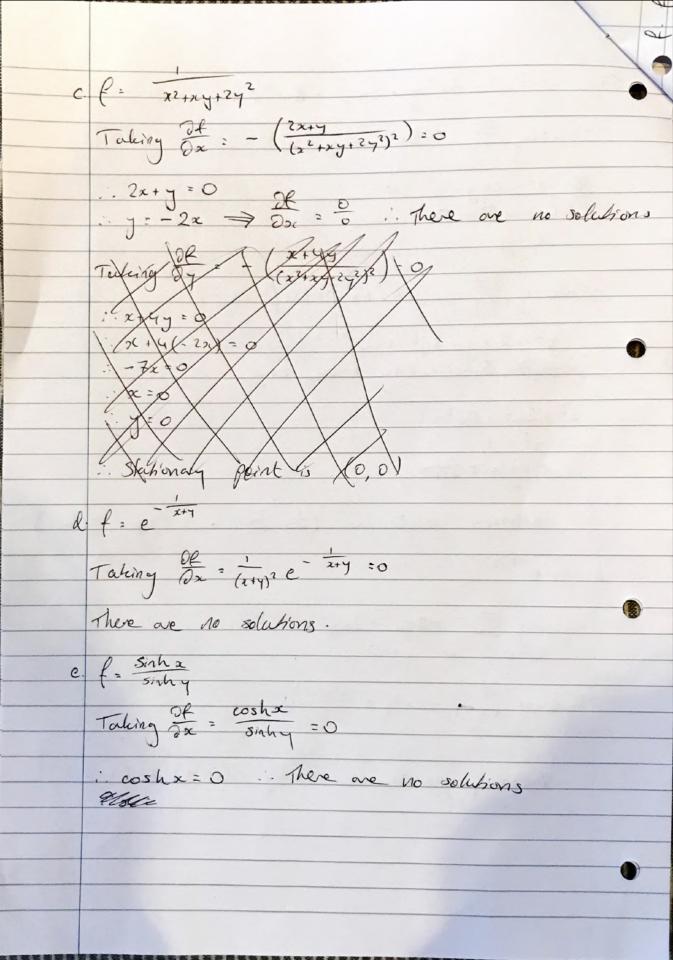
$$\frac{\partial f}{\partial x} = -2xy^2 e^{-x^2y^2}$$

$$\frac{\partial \mathcal{L}}{\partial y} = -2x^2ye^{-x^2y^2}$$

$$\frac{\partial^{2} f}{\partial y^{2}} = -2x^{2} \left( e^{-x^{2}y^{2}} - 2x^{2}y e^{-x^{2}y^{2}} \right)$$

$$= -2x^{2} \left( 1 - 2x^{2}y \right) e^{-x^{2}y^{2}}$$

53.a. f = x3 - 3x2y + 3xy2 + 8y3 - 3y Taking 3x : 3x2 -6xy +3y2 = 0  $2^{2}-2xy+y^{2}=0$   $(x-y)^{2}=0$ · 2=4 Taking Dy = -3x2 + 6xy + 24y2 -3 = 0 :. x2 + 2xy + 8y2-1=0 Substituting xxxy,  $a^2 + 2x^2 + 8x^2 = 1$ : 11 x2 = 1 : Stationary points one ( To to ) and (- to - to b. f= e-x242 Tuking ox = Mg - 2xy2 e - 22y2 = 0 Taking of = -2224 e-2242 =0 : Stationary points are tx ty (0, y) or (x,0)



f f: (x2+42) 1/2 Taking ox = 1/2 (22+42) 1/2 . 2x = 0 Taking Dy = = (x2+y2) -12. 2y = 0 .. by = 0 .. there are no solubions 1 9. f = arctor ( ) Taking It = (1+ 42)x2 = -4 = 0 Taking Dy = (1+ 12) x = (2+ 42) = 0 .. There are no solutions 1 h f = x 7 Taking Dx = yx 4-1 = 0 : y=0 or x=0 Taking of : In a xy = 0 Case 1: y=0 > lux=0 > x=1 Case 2: 2=0 => Indeterminate form -> in The stationary point is ut (1,0)