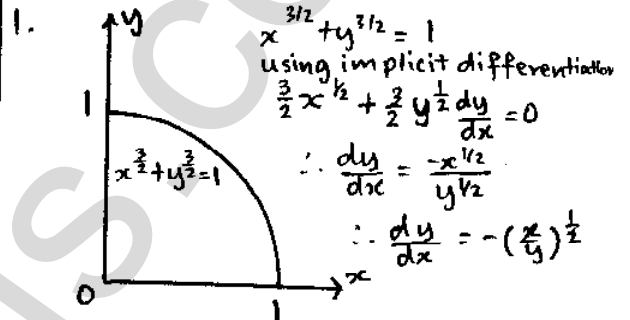
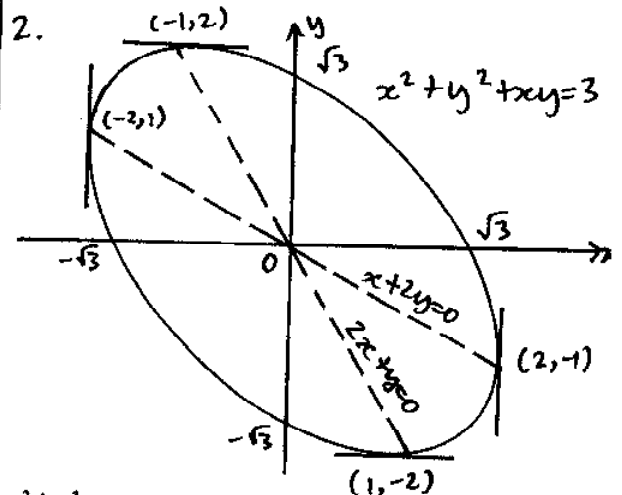


EXERCISE: 1.9



$\therefore$ The tangent at the critical point (0,1) is horizontal.

$\therefore$ The tangent at the critical point (1,0) is vertical.

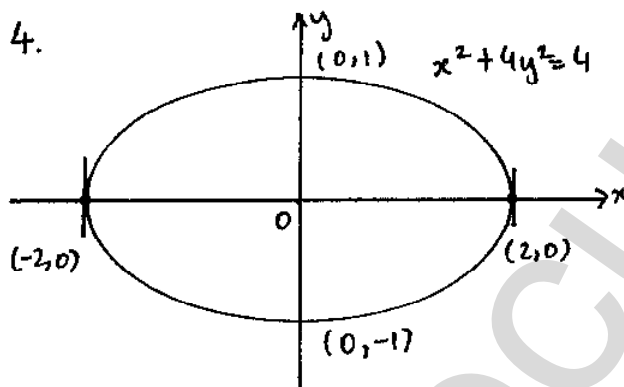
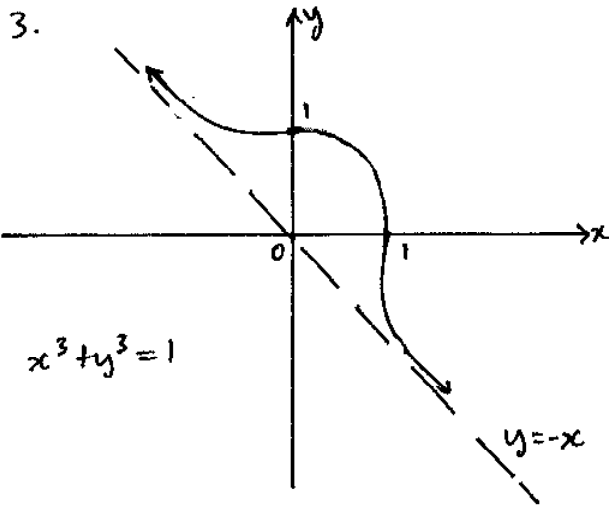


$x^2 + y^2 + xy = 3$ using implicit differentiation:
 $2x + 2y\frac{dy}{dx} + y + x\frac{dy}{dx} = 0$

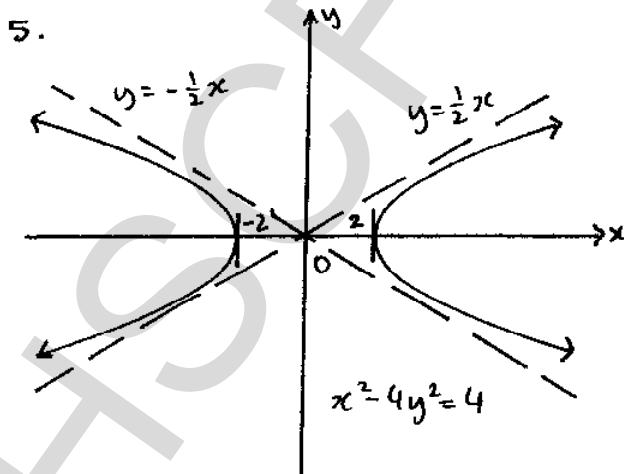
$$(2y+x)\frac{dy}{dx} = -(2x+y) \therefore \frac{dy}{dx} = -\frac{(2x+y)}{x+2y}$$

$\therefore$ The tangent at the critical points (-1,2) and (1,-2) are horizontal.

$\therefore$ The tangent at the critical points (-2,1) and (2,-1) are vertical.



∴ The vertical tangents $(-2,0)$ and $(2,0)$ are critical points.



∴ The vertical tangents $(2,0)$ and $(-2,0)$ are critical points.