

9 A curve has equation

$$x^2y^2 + xy^4 = 12$$

9 (a) Prove that the curve does not intersect the coordinate axes.

[2 marks]

9 (b) (i) Show that $\frac{dy}{dx} = -\frac{2xy + y^3}{2x^2 + 4xy^2}$

[5 marks]

9 (b) (ii) Prove that the curve has no stationary points.

[4 marks]

9 (b) (iii) In the case when $x > 0$, find the equation of the tangent to the curve when $y = 1$

[4 marks]