

10 In this question you must show detailed reasoning.

Fig. 10 shows the curve given parametrically by the equations $x = \frac{1}{t^2}$, $y = \frac{1}{t^3} - \frac{1}{t}$, for $t > 0$.

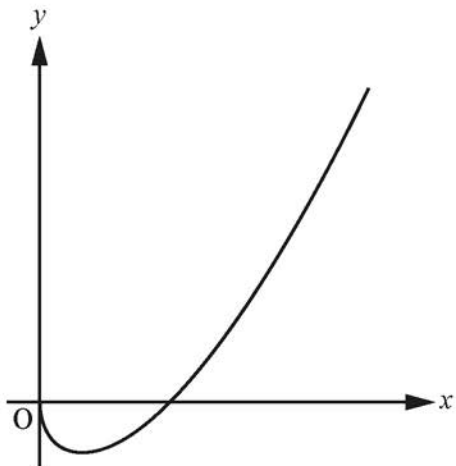


Fig. 10

- (a) Show that $\frac{dy}{dx} = \frac{3-t^2}{2t}$. [3]
- (b) Find the coordinates of the point on the curve at which the tangent to the curve is parallel to the line $4y+x=1$. [3]
- (c) Find the cartesian equation of the curve. Give your answer in factorised form. [3]