

8 A curve is such that

$$\frac{dy}{dx} = 2(3x + 4)^{\frac{3}{2}} - 6x - 8.$$

- (i) Find $\frac{d^2y}{dx^2}$. [2]
- (ii) Verify that the curve has a stationary point when $x = -1$ and determine its nature. [2]
- (iii) It is now given that the stationary point on the curve has coordinates $(-1, 5)$. Find the equation of the curve. [5]