

**12** A curve is such that  $\frac{dy}{dx} = x^{\frac{1}{2}} - x^{-\frac{1}{2}}$ . The curve passes through the point  $(4, \frac{2}{3})$ .

(i) Find the equation of the curve. [4]

(ii) Find  $\frac{d^2y}{dx^2}$ . [2]

(iii) Find the coordinates of the stationary point and determine its nature. [5]