

14 The equation of a curve is

$$y = x^2(x - 2)^3.$$

(a) Find $\frac{dy}{dx}$, giving your answer in factorised form. **[4]**

(b) Determine the coordinates of the stationary points on the curve. **[4]**

In part **(c)** you may use the result $\frac{d^2y}{dx^2} = 4(x - 2)(5x^2 - 8x + 2)$.

(c) Determine the nature of the stationary points on the curve. **[3]**

(d) Sketch the curve. **[2]**