

- 9** A curve is such that $\frac{d^2y}{dx^2} = -4x$. The curve has a maximum point at $(2, 12)$.

(i) Find the equation of the curve. [6]

A point P moves along the curve in such a way that the x -coordinate is increasing at 0.05 units per second.

(ii) Find the rate at which the y -coordinate is changing when $x = 3$, stating whether the y -coordinate is increasing or decreasing. [2]