

10 The equation of a curve is $y = 3 + 4x - x^2$.

(i) Show that the equation of the normal to the curve at the point $(3, 6)$ is $2y = x + 9$. [4]

(ii) Given that the normal meets the coordinate axes at points A and B , find the coordinates of the mid-point of AB . [2]

(iii) Find the coordinates of the point at which the normal meets the curve again. [4]