1 Fig. 12 is a sketch of the curve $y = 2x^2 - 11x + 12$.
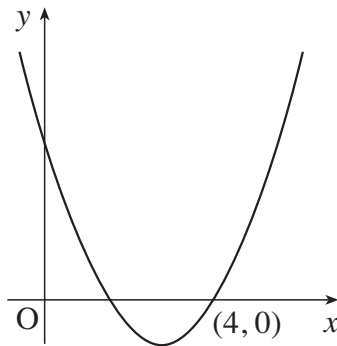

Fig. 12

(i) Show that the curve intersects the x-axis at $(4, 0)$ and find the coordinates of the other point of intersection of the curve and the x-axis. [3]

(ii) Find the equation of the normal to the curve at the point $(4, 0)$.

Show also that the area of the triangle bounded by this normal and the axes is 1.6 units^2. [6]

(iii) Find the area of the region bounded by the curve and the x-axis. [3]

2 A curve has equation $y = x^3 - 6x^2 + 12$.

(i) Use calculus to find the coordinates of the turning points of this curve. Determine also the nature of these turning points. [7]

(ii) Find, in the form $y = mx + c$, the equation of the normal to the curve at the point $(2, -4)$. [4]