8 **In this question you must show detailed reasoning.**

A is the point $(1, 0)$, B is the point $(1, 1)$ and D is the point where the tangent to the curve $y = x^3$ at B crosses the x-axis, as shown in Fig. 8. The tangent meets the y-axis at E.
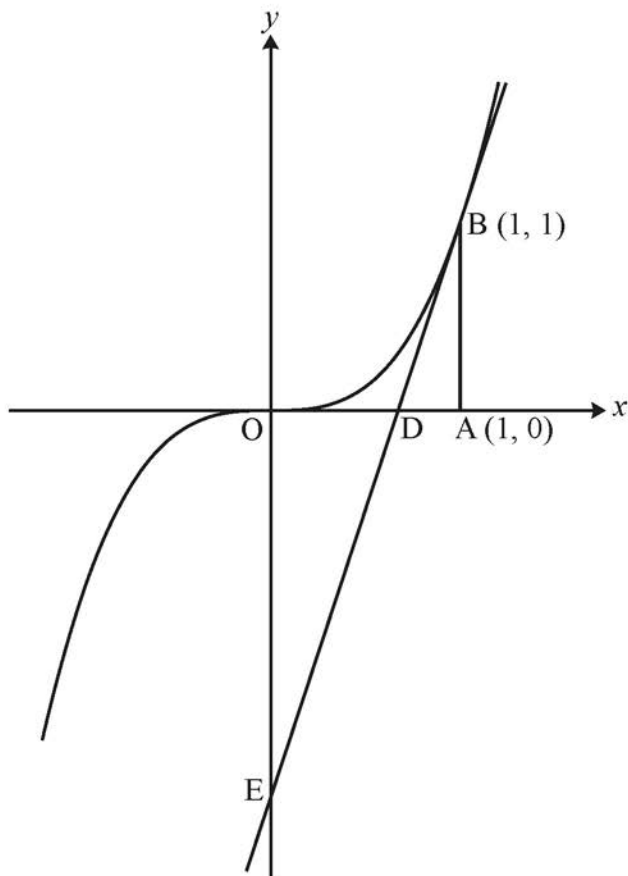

Fig. 8

(a) Find the area of triangle ODE. [6]

(b) Find the area of the region bounded by the curve $y = x^3$, the tangent at B and the y-axis. [4]