

- 12 Fig. 12 shows the circle $(x-1)^2 + (y+1)^2 = 25$, the line $4y = 3x - 32$ and the tangent to the circle at the point A (5, 2). D is the point of intersection of the line $4y = 3x - 32$ and the tangent at A.

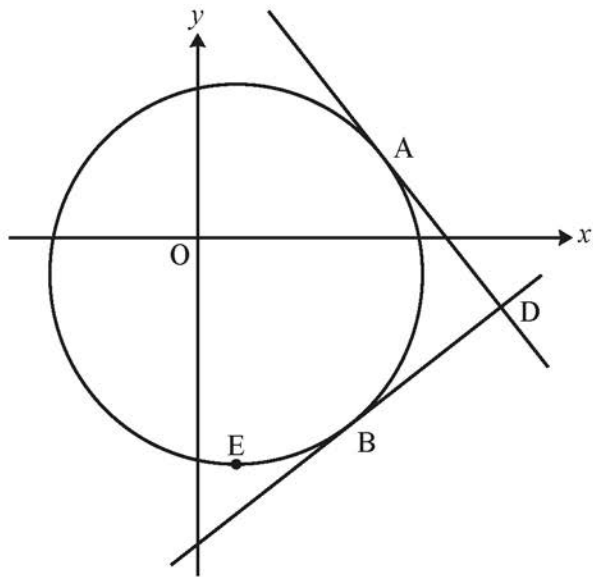


Fig. 12

- (i) Write down the coordinates of C, the centre of the circle. [1]
- (ii) (A) Show that the line $4y = 3x - 32$ is a tangent to the circle. [4]
- (B) Find the coordinates of B, the point where the line $4y = 3x - 32$ touches the circle. [1]
- (iii) Prove that AD BC is a square. [3]
- (iv) The point E is the lowest point on the circle. Find the area of the sector ECB. [5]