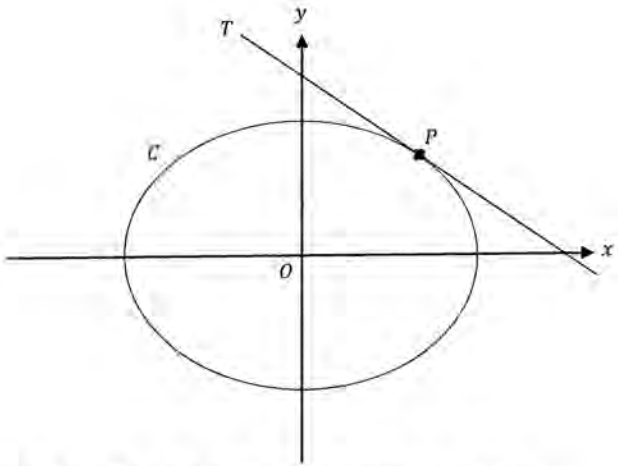
9



The diagram above shows the curve C with parametric equations,

$$x = 2\cos\theta, \qquad y = 4\sin\theta, \qquad 0 \leq \theta \leq 2\pi$$

The point P lies on C where $\theta = \alpha$, where $0 < \theta < \frac{\pi}{2}$

The line T is a tangent to C at P.

9(a) Find the equation of the tangent at P in the form $ax + by = c$, where a and b are functions in α while c is an integer constant.

[6 marks]

The tangent meets the coordinate axes at the points A and B.

The area of the triangle OAB, where O is the origin, is less than 16 square units.

9(b) Find the range of the possible values of α

[7 marks]