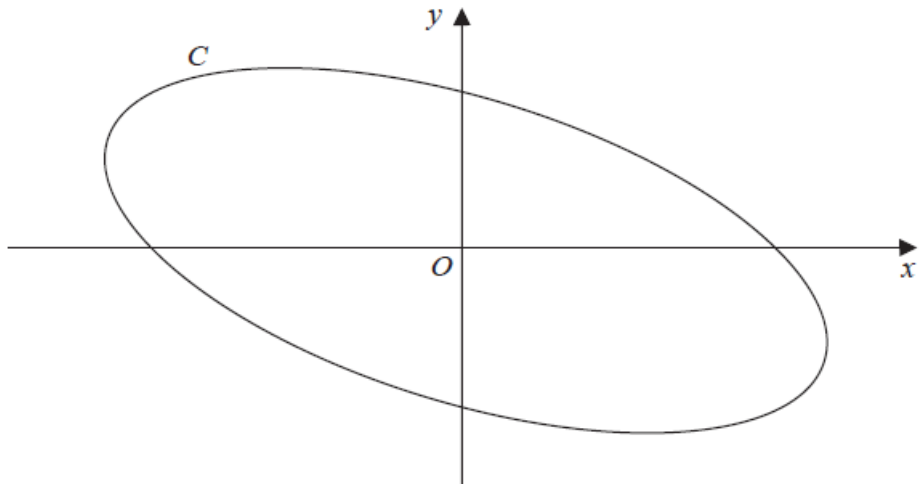


14.



**Figure 6**

Figure 6 shows a sketch of the curve  $C$  with parametric equations

$$x = 4 \cos \left( t + \frac{\pi}{6} \right), \quad y = 2 \sin t, \quad 0 < t \leq 2\pi.$$

Show that a Cartesian equation of  $C$  can be written in the form

$$(x + y)^2 + ay^2 = b,$$

where  $a$  and  $b$  are integers to be found.

(5)

(Total for Question 14 is 5 marks)