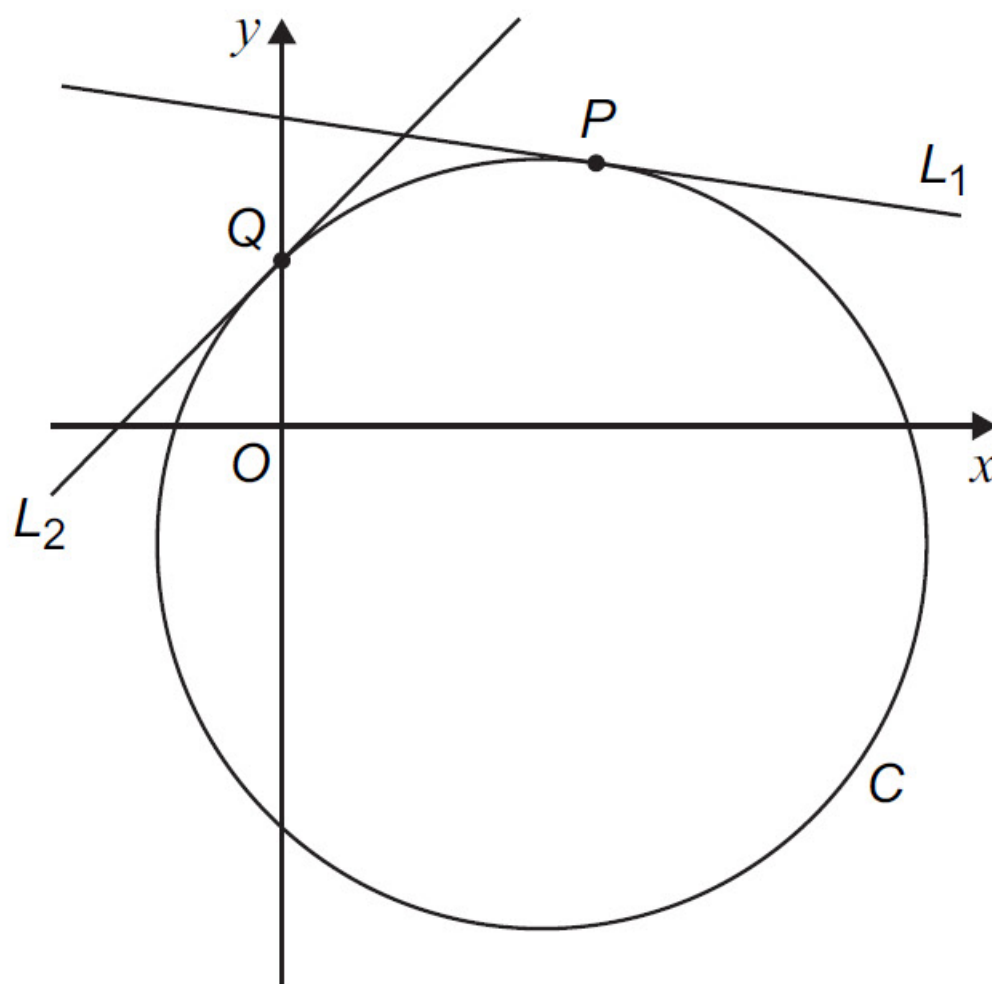**11**     The line $L_1$ has equation $x + 7y - 41 = 0$

$L_1$ is a tangent to the circle $C$ at the point $P(6, 5)$

The line $L_2$ has equation $y = x + 3$

$L_2$ is a tangent to the circle $C$ at the point $Q(0, 3)$

The lines $L_1$ and $L_2$ and the circle $C$ are shown in the diagram below.



**11 (a)**     Show that the equation of the radius of the circle through $P$ is $y = 7x - 37$

**[3 marks]**

**11 (b)**     Find the equation of $C$

**[4 marks]**