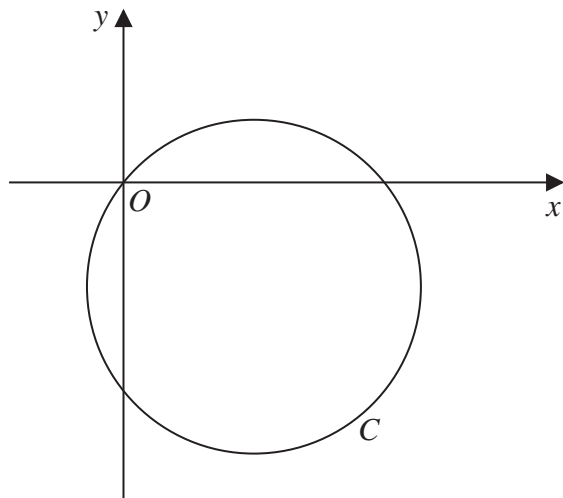**2.**

Figure 1

Figure 1 shows the circle *C* with equation

$$x^2 + y^2 - 12x + 10y = 0$$

(a) Find

   (i) the coordinates of the centre of *C*

  (ii) the exact radius of *C*

(3)

The straight line with equation $y = k$, where *k* is a positive constant, is a tangent to *C* at the point *P*

(b) Find the exact value of *k*

(1)

Given that *C* meets the *y*-axis at the origin *O* and at the point *Q*

(c) find the area of the triangle *OPQ*, making your method clear.

(3)