12 The circle C has equation

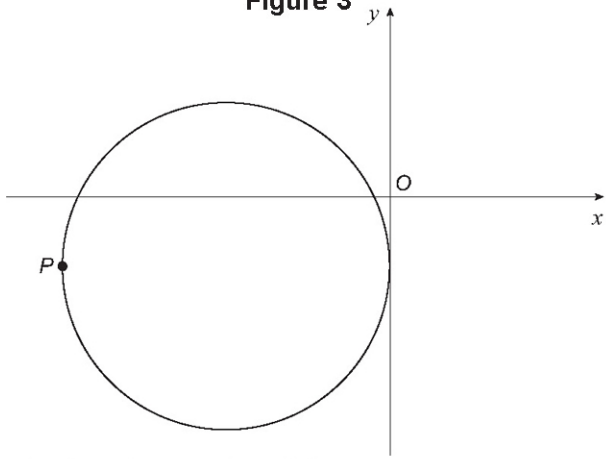
$$(x + 5)^2 + (y + 2)^2 = r^2$$

where r is an integer.

The point P has coordinates $(-10, -2)$ and lies on C

Circle C and point P are shown in **Figure 3**

Figure 3



12 (a) (i) State the coordinates of the centre of C **[1 mark]**

12 (a) (ii) Find the radius of the circle. **[1 mark]**

12 (a) (iii) State the equation of the tangent to C at P **[1 mark]**

12 (b) The point Q lies on the tangent to C at P

PQ has length 3.75 units.

Another circle D has centre Q

D intersects C at exactly one point.

Find the possible values for the radius of D **[4 marks]**