Coordinate Geometry: Circle
Question Paper 3

Level	A Level
Subject	Maths
Exam Board	OCR
Topic	Coordinate Geometry & Graphs
Sub Topic	Coordinate Geometry: Circles
Booklet	Question Paper 3

Time Allowed: 49 minutes

Score: /41

Percentage: /100

1 The circle with equation $x^2 + y^2 - 6x - k = 0$ has radius 4.

    (i) Find the centre of the circle and the value of k.   [4]

The points A (3, a) and B (−1, 0) lie on the circumference of the circle, with $a > 0$.

    (ii) Calculate the length of AB, giving your answer in simplifi d surd form.   [5]

    (iii) Find an equation for the line AB.   [3]

2   **(i)** Describe completely the curve $x^2 + y^2 = 25$.   [2]

    (ii) Find the coordinates of the points of intersection of the curve $x^2 + y^2 = 25$ and the line $2x + y - 5 = 0$.   [6]

3 A circle with centre C has equation $x^2 + y^2 - 2x + 10y - 19 = 0$.

    (i) Find the coordinates of C and the radius of the circle.   **[3]**

    (ii) Verify that the point (7, –2) lies on the circumference of the circle.   **[1]**

    (iii) Find the equation of the tangent to the circle at the point (7, –2), giving your answer in the form $ax + by + c = 0$, where a, b and c are integers.   **[5]**

4 A circle has centre $C(−2, 4)$ and radius 5.

    (i) Find the equation of the circle, giving your answer in the form $x^2 + y^2 + ax + by + c = 0$.   **[3]**

    (ii) Show that the tangent to the circle at the point $P(−5, 8)$ has equation $3x − 4y + 47 = 0$.   **[5]**

    (iii) Verify that the point $T(3, 14)$ lies on this tangent.   **[1]**

    (iv) Find the area of the triangle CPT.   **[4]**