

CIRCLE (Q 1, PAPER 2)

2004

- 1 (a) A circle has centre $(-1, 5)$ and passes through the point $(1, 2)$. Find the equation of the circle.
- 1 (b) The point $a(5, 2)$ is on the circle $K: x^2 + y^2 + px - 2y + 5 = 0$.
- (i) Find the value of p .
- (ii) The line $L: x - y - 1 = 0$ intersects the circle K . Find the co-ordinates of the points of intersection.
- 1 (c) The y -axis is a tangent to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$.
- (i) Prove that $f^2 = c$.
- (ii) Find the equations of the circles that pass through the points $(-3, 6)$ and $(-6, 3)$ and have the y -axis as a tangent.

ANSWERS

1 (a) $(x+1)^2 + (y-5)^2 = 13$ or $x^2 + y^2 + 2x - 10y + 13 = 0$

1 (b) (i) $p = -6$ (ii) $(1, 0), (4, 3)$

1 (c) (ii) $x^2 + y^2 + 6x - 6y + 9 = 0, x^2 + y^2 + 30x - 30y + 225 = 0$