

CIRCLE (Q 1, PAPER 2)

LESSON NO. 6: FINDING g, f AND c

2005

1 (c) A circle passes through the points $(7, 2)$ and $(7, 10)$. The line $x = -1$ is a tangent to the circle. Find the equation of the circle.

2004

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.

2001

1 (c) The circle $x^2 + y^2 + 2gx + 2fy + c = 0$ passes through the points $(3, 3)$ and $(4, 1)$. The line $3x - y - 6 = 0$ is a tangent to the circle at $(3, 3)$.

(i) Find the real numbers g, f and c .

(ii) Find the co-ordinates of the point on the circle at which the tangent parallel to $3x - y - 6 = 0$ touches the circle.

ANSWERS

2005 1 (c) $x^2 + y^2 - 8x - 12y + 27 = 0$

2004 1 (c) (ii) $x^2 + y^2 + 6x - 6y + 9 = 0$, $x^2 + y^2 + 30x - 30y + 225 = 0$

2001 1 (c) (i) $g = -\frac{9}{2}$, $f = -\frac{5}{2}$, $c = 24$ (ii) $(6, 2)$