

CIRCLE (Q 1, PAPER 2)

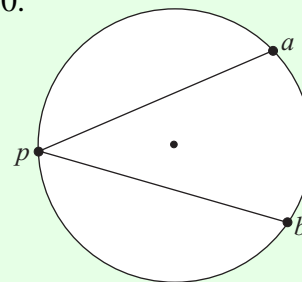
2008

- 1 (a) A circle with centre $(-3, 2)$ passes through the point $(1, 3)$.
Find the equation of the circle.
- (b) (i) Prove that the equation of the tangent to the circle $x^2 + y^2 = r^2$
at the point (x_1, y_1) is $xx_1 + yy_1 = r^2$.
- (ii) A tangent is drawn to the circle $x^2 + y^2 = 13$ at the point $(2, 3)$.
This tangent crosses the x -axis at $(k, 0)$. Find the value of k .
- (c) A circle passes through the points $a(8, 5)$ and $b(9, -2)$.
The centre of the circle lies on the line $2x - 3y - 7 = 0$.

(i) Find the equation of the circle.

(ii) p is a point on the major arc ab of the circle.

Show that $|\angle apb| = 45^\circ$.



ANSWERS

1 (a) $(x+3)^2 + (y-2)^2 = 17$

(b) (ii) $k = \frac{13}{2}$

(c) (i) $x^2 + y^2 - 10x - 2y + 1 = 0$