

CIRCLE (Q 1, PAPER 2)

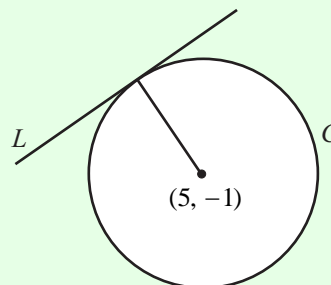
2006

1 (a) $a(-1, -3)$ and $b(3, 1)$ are the end-points of a diameter of a circle. Write down the equation of a circle.

1 (b) Circle C has centre $(5, -1)$. The line $L: 3x - 4y + 11 = 0$ is a tangent to C .

(i) Show that the radius of C is 6.

(ii) The line $x + py + 1 = 0$ is also a tangent to C .
Find two possible values of p .



1 (c) S is the circle $x^2 + y^2 + 4x + 4y - 17 = 0$ and K is the line $4x + 3y = 12$.

(i) Show that the line K does not intersect S .

(ii) Find the co-ordinates of the point on S that is closest to K .

ANSWERS

1 (a) $(x - 1)^2 + (y + 1)^2 = 8$ or $x^2 + y^2 - 2x + 2y - 6 = 0$

1 (b) (ii) $p = 0, -\frac{12}{35}$

1 (c) (ii) $(2, 1)$