## The Circle (Q 3, Paper 2)

2005
3 (a) The circle $C$ has equation $x^{2}+y^{2}=49$.
(i) Write down the centre and the radius of $C$.
(ii) Verify that the point $(5,-5)$ lies outside the circle $C$.
(b) The line $y=10-2 x$ intersects the circle $x^{2}+y^{2}=40$ at the points $a$ and $b$.
(i) Find the coordinates of $a$ and the co-ordinates of $b$.
(ii) Show the line, the circle and the points of intersection on a coordinate diagram.
(c) The circle $K$ has equation $(x+4)^{2}+(y-3)^{2}=36$.
(i) Write down the coordinates of the centre of $K$.
(ii) The point $(2,3)$ is one end-point of a diameter of $K$.

Find the coordinates of the other end-point.
(iii) The point $(-4, y)$ is on the circle $K$. Find the two values of $y$.

## Answers

3 (a) (i) (0, 0), $r=7$
(b) (i) $a(2,6), b(6,-2)$
(ii)

(c) $(\mathrm{i})(-4,3)$
(ii) $(-10,3)$
(iii) $y=-3,9$

