## The Circle (Q 3, Paper 2)

2004
3 (a) The circle $C$ has equation $x^{2}+y^{2}=36$.
(i) Write down the radius of $C$.
(ii) The radius of another circle is twice the radius of $C$.

The centre of this circle is $(0,0)$. Write down its equation.
(b) A circle has equation $x^{2}+y^{2}=13$.

The points $a(2,-3), b(-2,3)$ and $c(3,2)$ are on the circle.
(i) Verify that $[a b]$ is a diameter of the circle.
(ii) Verify that $\angle a c b$ is a right angle.
(c) $K$ is a circle with centre $(-2,1)$. It passes through the point $(-3,4)$.
(i) Find the equation of $K$.
(ii) The point $(t, 2 t)$ is on the circle $K$.

Find the two possible values of $t$.

## Answers

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(a) $(\mathrm{i}) r=6$
(ii) $x^{2}+y^{2}=144$
(c) (i) $(x+2)^{2}+(y-1)^{2}=10$
(ii) $t= \pm 1$

