## The Circle (Q 3, Paper 2)

2010
3 (a) A circle with centre $(0,0)$ passes through the point $(5,-12)$.
(i) Find the radius of the circle.
(ii) Write down the equation of the circle.
(b) The circle $c$ has equation $x^{2}+y^{2}=17$.
$l$ is the line $x-4 y-17=0$.
The line $l$ is a tangent to $c$ at the point $T$.
(i) Find the co-ordinates of $T$.
(ii) The point $T$ is one end-point of a diameter of $c$.

Find the co-ordinates of the other end-point.
(c) A circle has equation $x^{2}+(y-7)^{2}=100$.
(i) Write down the co-ordinates of the centre of the circle and the radius of the circle.
(ii) The point $(6, h)$ is on the circle. Find the two possible values of $h$.

## Answers

3 (a) (i) $13 \quad$ (ii) $x^{2}+y^{2}=169$
(b) (i) $T(1,-4) \quad$ (ii) $(-1,4)$
(c) (i) Centre (0, 7), $r=10$
(ii) $h=-1,15$

