



1. A circle C has equation,

$$x^2 + y^2 - 4x + 10y = k$$

Where k is a constant.

- Find the coordinates of the centre of C
- State the range of possible values for k

(2)

(2)

2. A circle has centre $(-1, 7)$ and passes through the point $(0, 0)$. Find an equation for C .

(3)

Solutions

1a.

$(x-2)^2 - 4 + (y+5)^2 - 25 = k$ $(x-2)^2 + (y+5)^2 = k + 29$	M1
Centre at (2, -5)	M1

1b.

$r^2 = k + 29$ As $r > 0$	M1
$k + 29 > 0$ $k > -29$	M1

2.

$r^2 = (-1)^2 + (7)^2 = 50$	M1
Equation of C: $(x - -1)^2 + (y - 7)^2 = 50$	M1
$(x + 1)^2 + (y - 7)^2 = 50$	M1

