**Equation of a Circle**

Find the centre and radius of each of these circles:

(a) $(x-1)^{2}+(y-1)^{2}=9$

(b) $(x-1)^{2}+(y-1)^{2}=25$

(c) $(x-3)^{2}+(y-2)^{2}=25$

(d) $(x+3)^{2}+(y+2)^{2}=16$

(e) $x^{2}+(y+2)^{2}=16$

(f) $(x-4)^{2}+y^{2}=36$

Write down the equation of the circle with:

(a) Centre (1, 2) and radius 8

(b) Centre (7, 3) and radius 2

(c) Centre (-2, 5) and radius 5

(d) Centre (-5, -1) and radius 4

(e) Centre (3, -6) and radius $\sqrt{7}$

(f) Centre (0, -4) and radius $\sqrt{20}$

Find the centre and radius of the circle with equation:

(a) $x^{2}+y^{2}-2x+8y-8=0$

(b) $x^{2}+y^{2}+12x-4y=9$

(c) $x^{2}+y^{2}-22x-6y+40=0$

(d) $x^{2}+y^{2}-4x-11=0$

(a) Show that the point $(2, 10)$ lies on the circle with equation

$$(x-2)^{2}+(y-7)^{2}=9$$

(b) A circle has centre $(5, 10)$. The point $(2, 14)$ lies on the circumference of the circle. Find the equation of the circle.

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