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B.Sc Part I

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Analytical Geometry of two

Dimensions

System of circles

General Equation of circle.

$$x^2 + y^2 + 2gx + 2fy + c = 0$$

It contains three arbitrary constants g, f and c .

Find the equation of the family of circles having centre at $(-2, 3)$.

Find the member with radius 2.

Solⁿ

The equation of the family of circles having centre at $(-2, 3)$ is given by

$(x+2)^2 + (y-3)^2 = a^2$, where a is the radius.

$$\text{or, } x^2 + y^2 + 4x - 6y + 13 - a^2 = 0$$

This is the equation of the family of circles with centre $(-2, 3)$. It is

Given that $a = 2$.

Hence the equation of the member with radius 2 is

$$x^2 + y^2 + 4x - 6y + 13 - 4 = 0$$

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$$x^2 + y^2 + 4x - 6y + 9 = 0$$