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B.Sc. Part I PAPER
Curve tracing - 2.

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Tracing of curve in Polar Co-ordinate

Procedure (i) Symmetry - (a) If θ be replaced by $-\theta$ and the equation remains unaltered, the curve is Symmetrical about the initial line.

(b) If only even powers of r occur in the equation, the curve is Symmetrical about the pole or origin.

(c) The curve is Symmetrical about the line $\theta = \frac{\pi}{4}$ if the equation of the curve remains unaltered when θ is changed into $\frac{\pi}{2} - \theta$.

(ii) If the curve passes through the pole, find the equation of the tangent at the pole.

The value of θ for which r is zero gives the tangent at the pole.

(iii) For different suitable values of θ find the corresponding series values of r .

In most polar equations only periodic function ($\sin \theta$, $\cos \theta$ etc.) occur and so values of θ from 0 to 2π need alone be considered.

(iv) If possible, find the equation or equation of asymptotes.