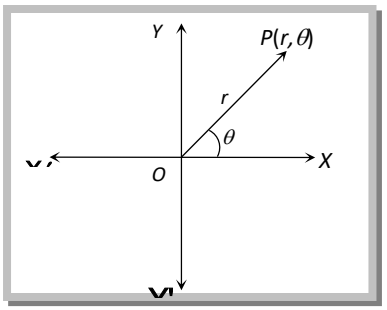
Polar Co-ordinates.

Let OX be any fixed line which is usually called the initial line and O be a fixed point on it. If distance of any point P from the O is 'r' and $\angle XOP = \theta$, then (r, θ) are called the polar co-ordinates of a point P.



If (x, y) are the Cartesian co-ordinates of a point P, then

$x = r\cos\theta$; $y = r\sin\theta$ and $r = \sqrt{x^2 + y^2}$

$\theta = \tan^{-1}\left(\frac{y}{x}\right)$