of the field is tangent to the curve at that point.

$$DE : \frac{dx}{P} = \frac{dy}{0}$$

or

$$O(x, y)dx - P(x, y)dy = 0$$

. The orthogonal trajectories of the vector lines are called equipotential curves of the field with DE. $Pdx + 0dy = 0$.

EXAMPLE 0.1. Find the family of vector lines (stream lines) of the vector field.
$F = 2xyi - (x^2 - y^2)j$

and the equipotential curves.

Solution.

$$\frac{dx}{2xy} = \frac{dy}{-(x^2 - y^2)}$$

$$\Longrightarrow (x^2 - y^2)dx + 2xydy = 0$$

$$GS : x^2 + y^2 = cx$$

(circles)

. Then the DE of the equipotential curves will be

$$(x^2 - y^2)dy - 2xydx = 0$$

with solution

$$x^2 + y^2 = cy$$

Exercises(6.3)

36. Find the DE of the family of parabolas having the origin as focus and $x = -p$ as directerix.

37.Find the curve having length of subnormal equal to 3 and passing through the point $(1, 4)$.

38.Find the equation in polar coordinates of the curves such that the tangent of the angle ψ between the radius vector