## Conic Section

General Equation Of Conic Section:

The general evuation of Second degree

This En always Represent Conic.

Nature of Conic  $e = {}^{\circ} U(\frac{d}{100}) + V U(\frac{d}{100}) Q + {}^{\circ} U(\frac{d}{100}) = {}^{\circ} U(\frac{d}{100}) + {}^{\circ} U(\frac{d}{100}) = {}^{\circ} U(\frac{d}{100}) = {}^{\circ} U(\frac{d}{100}) + {}^{\circ} U(\frac{d}{100}) = {}^$ 

Let an2 + 2hny + by2 + 2gnx + 2fy + C=0 be evn of conic.

and 
$$\Delta = \begin{vmatrix} a & h & g \\ h & b & f \end{vmatrix}$$
 and  $A = \begin{vmatrix} b & h & g \\ g & f & c \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & c \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & c \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f & g \end{vmatrix}$  and  $A = \begin{vmatrix} b & h & h \\ g & f$ 

$$\Delta = abc + 2fgh - of^2 - bg^2 - ch^2 + 0ff > o(0/1) - x < 0$$

In Earn 
$$an^2 + 2hny + by^2 + 28nx + 2fy + 0 = 0$$

$$\Delta \pm 0, \quad ab - h^2 > 0 \longrightarrow \text{ellipse (e < 1)}$$

$$\Delta \pm 0, \quad ab - h^2 < 0 \longrightarrow \text{Hyperbola (e > 1)}$$

$$\Delta \pm 0$$
,  $ab-h^2 = 0 \longrightarrow Parabola (e=1)$ 

Centre of Conic:

$$(N_1, Y_1) = \left(\frac{hf - bg}{ab - h^2}, \frac{8h - af}{ab - h^2}\right)$$

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C1 = 8N1 + fy14c of yet ingot full time + Sus

This En always Represent Conic of Simples of the Control of the Co

$$an^2 + 2hny + by^2 + C_1 = 0$$

$$\Rightarrow \left(\frac{-a}{a}\right)n^2 + 2\left(\frac{-h}{a}\right)n^2 + \left(\frac{-b}{a}\right)y^2 = 1$$

et and tenny that tagen tally the obelleving of conic.

An2 + 2HMY + BY=1

For the length of Thes

$$\frac{1}{r^4} - (P+Q) \frac{1}{r^2} + PQ - H^2 = 0$$
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=> 
$$\alpha^2 - (A+B) \propto +AB-H^2 \pm 0^{-5} \left[\alpha = \frac{1}{162}\right] \cdot B \cdot 10 + 0 d0 = 1$$
  
 $\alpha_1 \approx 2$ 

$$0 = 0 + 162 + 1682 + 540 + 1600 + 5100 = 10$$

$$(159) = 209 illo \leftarrow 0 < 12$$

0) cledmoque ← 02 24-d0 (0 ± 0 

Standard Form: 
$$\frac{\chi^2}{r_4^2} \pm \frac{y^2}{r_2^2} = 1$$
;  $+ \longrightarrow \text{ellipse}$   $- \longrightarrow \text{Hyperbola}$ 

Here, 
$$ab-h^2 = 1 \cdot (-4) - 6^2 = -40 < 0;$$

and 
$$\Delta = C(ab-h^2) + 2fgh - af^2 - bg^2$$

Centre is at 
$$(n_1, y_1) = \left(\frac{hf - bg}{ab - h^2}, \frac{gh - af}{ab - h^2}\right)^{(1+x_2)}$$

$$=\left(0,\frac{1}{2}\right)^{\frac{1}{2}}$$

Now, 
$$C_1 = 9x_1 + fy_1 + C = -3.0 + 2.\frac{1}{2} + 9 = 10$$

ENNOUNTE centre (0, /2) as onigin is

$$\chi^2$$
 + 120xy - 4y<sup>2</sup> + 10 = 0

$$A = -\frac{1}{10} / B = \frac{4}{10} / H = \frac{-6}{10}$$

For the length of axes

$$\frac{1}{r^4} - (h+b) \frac{1}{r^2} + hb - H^2 = 0$$
  $-(h-) \cdot 1 = \frac{1}{r^4} - do$ , anothing

$$= > \alpha^{2} - \frac{3}{10} \alpha - \frac{4+36}{(10)^{2}} = 0$$

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$$0 \neq 00/2 = 0$$

$$= ) (2x+1)(5x-4) = 0 
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(7x-4) = 0$$$$

$$\frac{1}{12} = \frac{5}{4}, \quad \frac{10^{2} = 2}{12}$$

$$\frac{1}{12} = \frac{\sqrt{5}}{7} = \frac{1}{12} \cdot \frac{10}{12} = \frac{10}{12}$$

$$\frac{1}{12} \cdot \frac{10}{12} = \frac{10}{12} \frac{10}{12} =$$

$$1.74 = \frac{\sqrt{5}}{2} - .74 = i\sqrt{2}$$

Standard form of 
$$\frac{\gamma^2}{(\sqrt{2})^2} - \frac{y_1^2}{(\sqrt{2})^2} = 1$$

\* Reduce the Earn  $n^2 + 2ny + y^2 - 6nx - 2y + 4 = 0$  to the Standard form.

of alpha but is

$$\Delta = C(ab-h^2) + 2fgh - of^2 - bg^2$$

$$= -4 \neq 0$$

.. 
$$ab-h^2 = 11-1^2 = 0$$

So, EN 1 repriesents Pariabola.

$$(1) \Rightarrow (x+y)^2 = 6x+2y-4$$

But (xty) = 0 and 6x+2y-4=0 are not at right angle, Introducing co-efficient 1.

$$(x+y+n)^2 = (2n+6)x+(2n+2)y+n^2-4$$

Now the lines n+y+n and  $(2n+6)n+(2n+2)y+n^2-4=0$  will be at right angle is-

reduce the Low of teasy ty - 601 - 29+41 = 0 the standard form.

$$8 - = RP \iff S = RP$$

Gives 
$$(a+y-2)^2 - aa-2y$$

(i) gives 
$$(\pi + 3 - 2)^2 = 2\pi - 2y$$
  
 $= > \left(\frac{\sqrt{12+12}}{\sqrt{12+12}}\right)^2 = 2\pi - 2y$ 

$$\Rightarrow \left(\frac{\pi + y - 2}{\sqrt{2}}\right)^2 = \sqrt{2} \cdot \left(\frac{\pi - y}{\sqrt{2}}\right)^{-1} \cdot \frac{1}{\sqrt{2}}$$

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Let, 
$$X = \frac{\chi - \gamma}{N_2}$$
,  $Y = \frac{\chi + \gamma - 2}{N_2}$ 

bigut to 
$$\tan \rho = u \cdot \frac{\sqrt{2}}{4} = u \cdot \frac{1}{2\sqrt{2}} + u \cdot \partial = bid = 0 = (v \cdot u) = i \cdot \partial$$

: Standand form of Ev () is - Brown of 
$$Y^2 = 4pn$$

Practice: Reduce the Ewn to its standard form-

11  $8n^2 + 4ny + 5y^2 - 16n - 14y + 13 = 0$ 

21 1702+1204 +842-462-284+33=0

31 n2-4ny +4y2 +10n-8y +13=0