

Foundation Batch



MATHS

Coordinate Geometry

Part -2

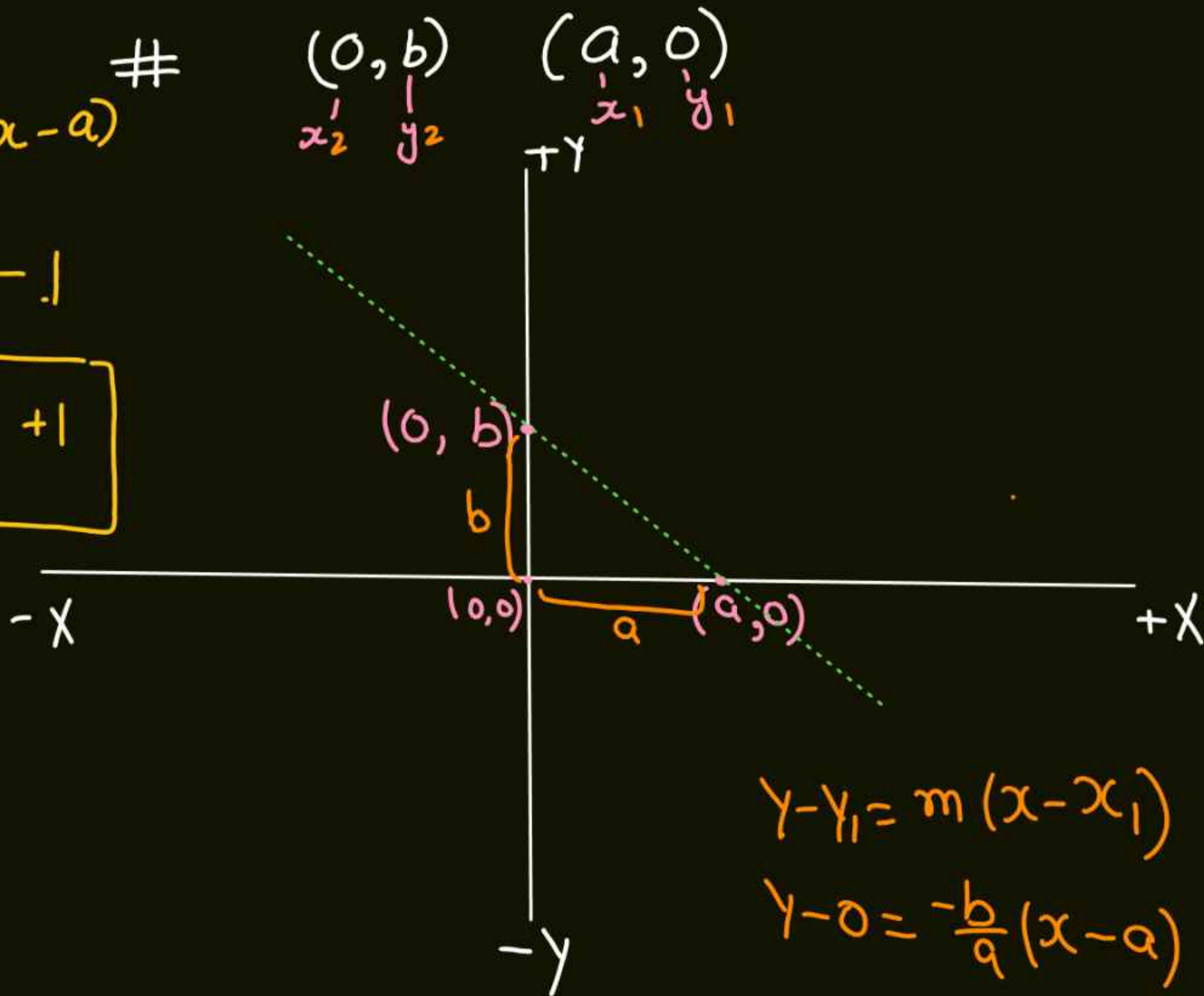
LIVE 06-01-2025 11:30AM



$$y = -\frac{b}{a}(x-a) \quad \#$$

$$\frac{y}{-b} = \frac{x}{a} - 1$$

$$\boxed{\frac{x}{a} + \frac{y}{b} = +1}$$

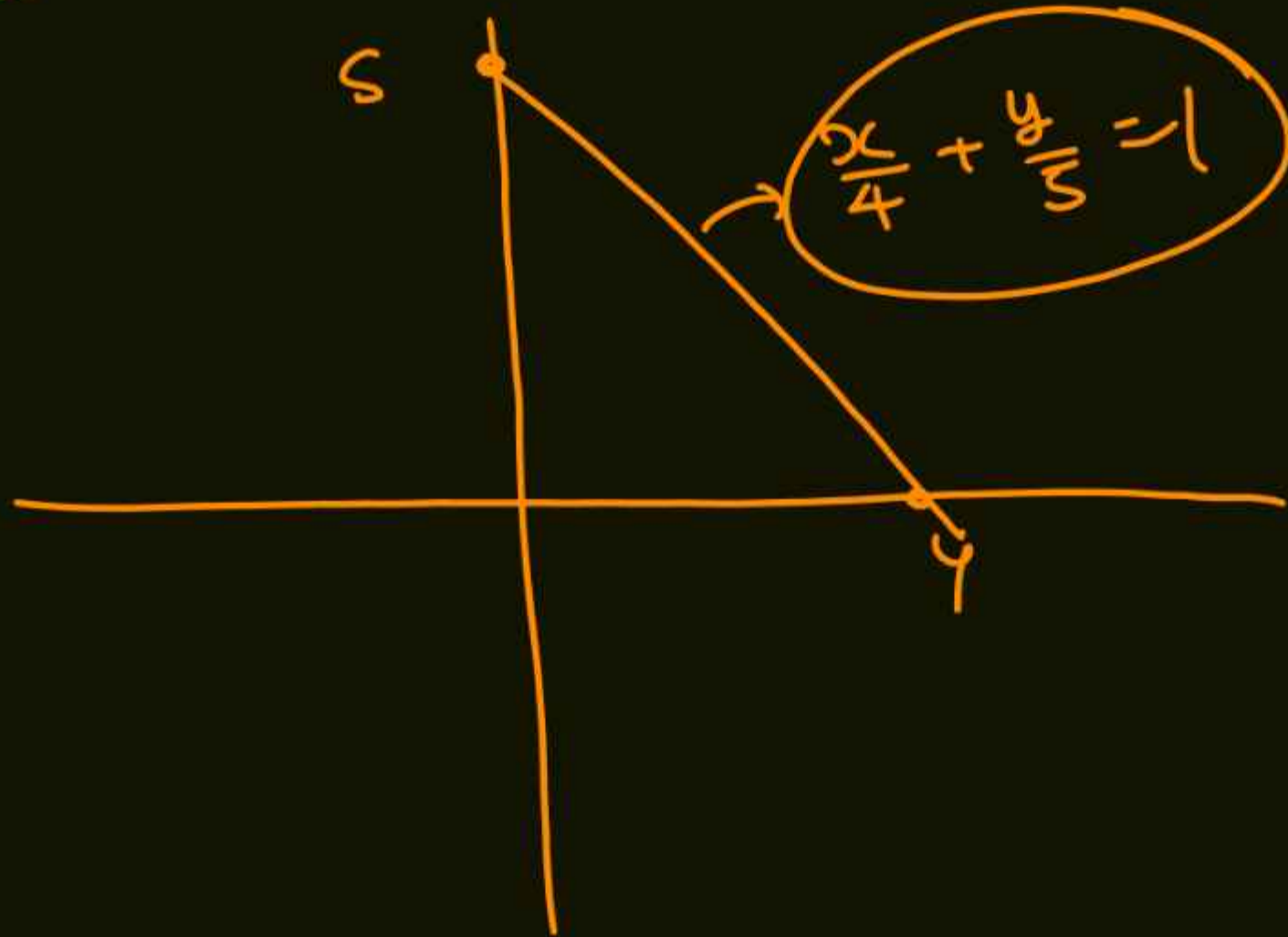


$$y - y_1 = m(x - x_1)$$

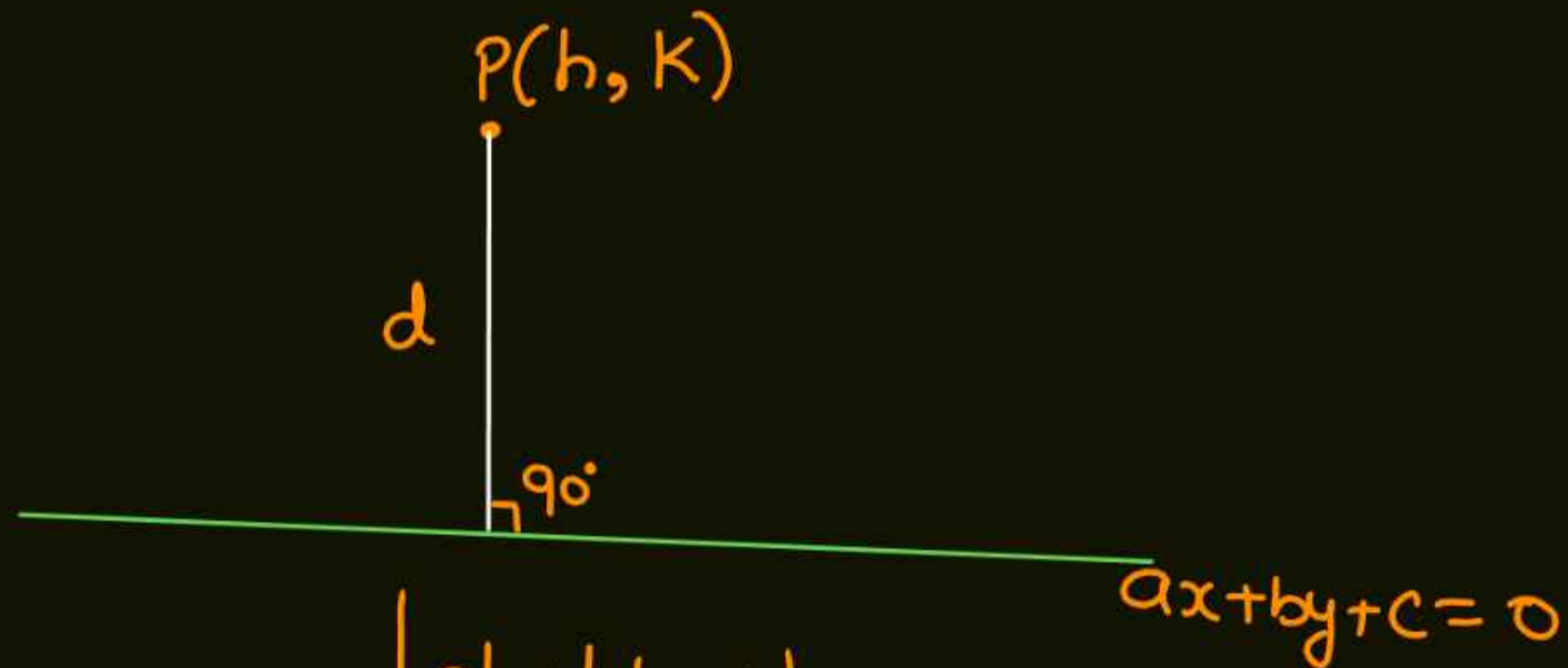
$$y - 0 = -\frac{b}{a}(x - a)$$

ex.

$$\frac{x}{\textcircled{4}} + \frac{y}{\textcircled{5}} = 1$$

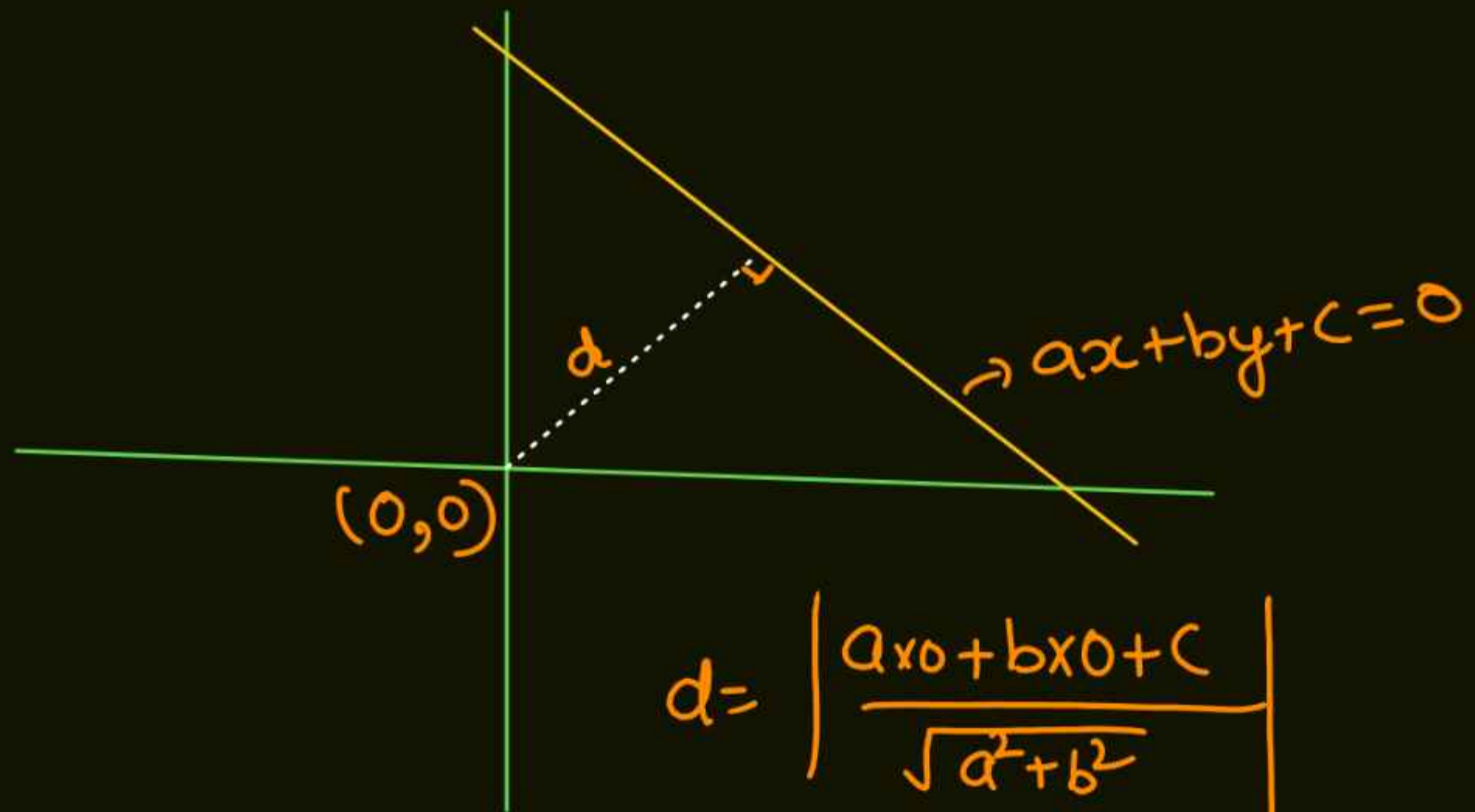


Perpendicular distance of a point from a line



$$d = \left| \frac{ah + bk + c}{\sqrt{a^2 + b^2}} \right|$$

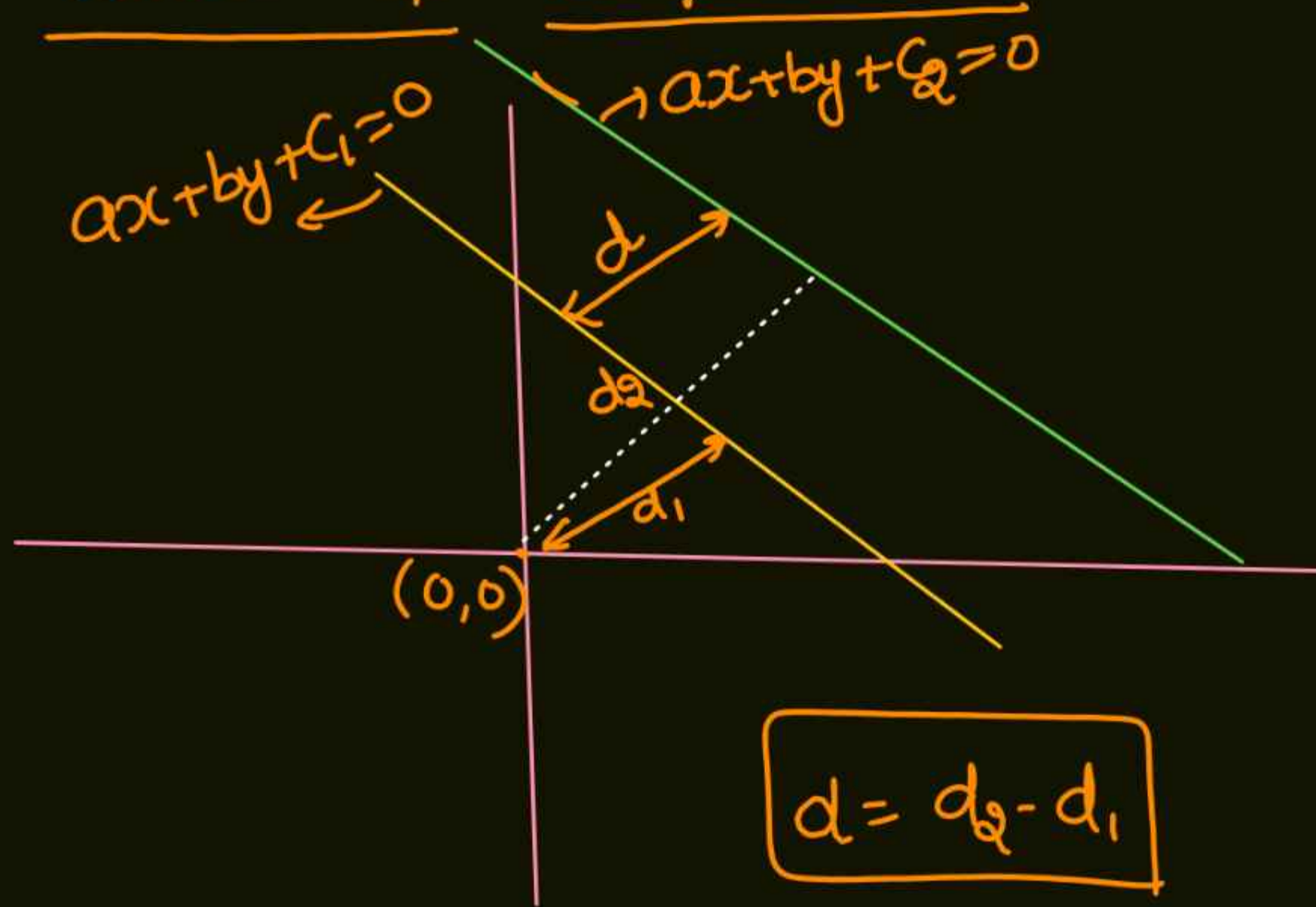
Perpendicular Distance from the origin



$$d = \left| \frac{ax_0 + by_0 + c}{\sqrt{a^2 + b^2}} \right|$$

$$\boxed{d = \left| \frac{c}{\sqrt{a^2 + b^2}} \right|}$$

Distance b/w two parallel lines.



$$d = d_2 - d_1$$

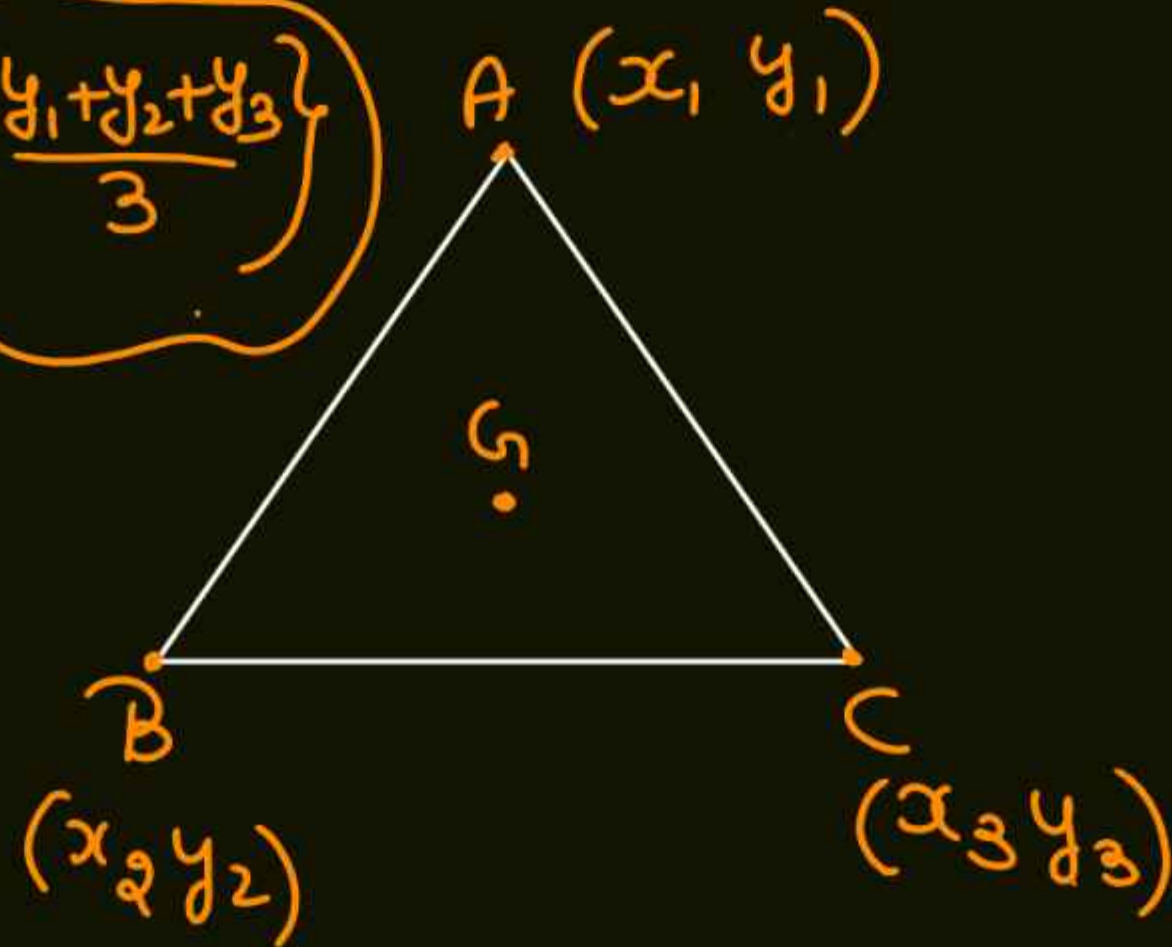
$$d = \frac{c_2}{\sqrt{a^2+b^2}} - \frac{c_1}{\sqrt{a^2+b^2}}$$

$$d = \left| \frac{c_2 - c_1}{\sqrt{a^2+b^2}} \right|$$

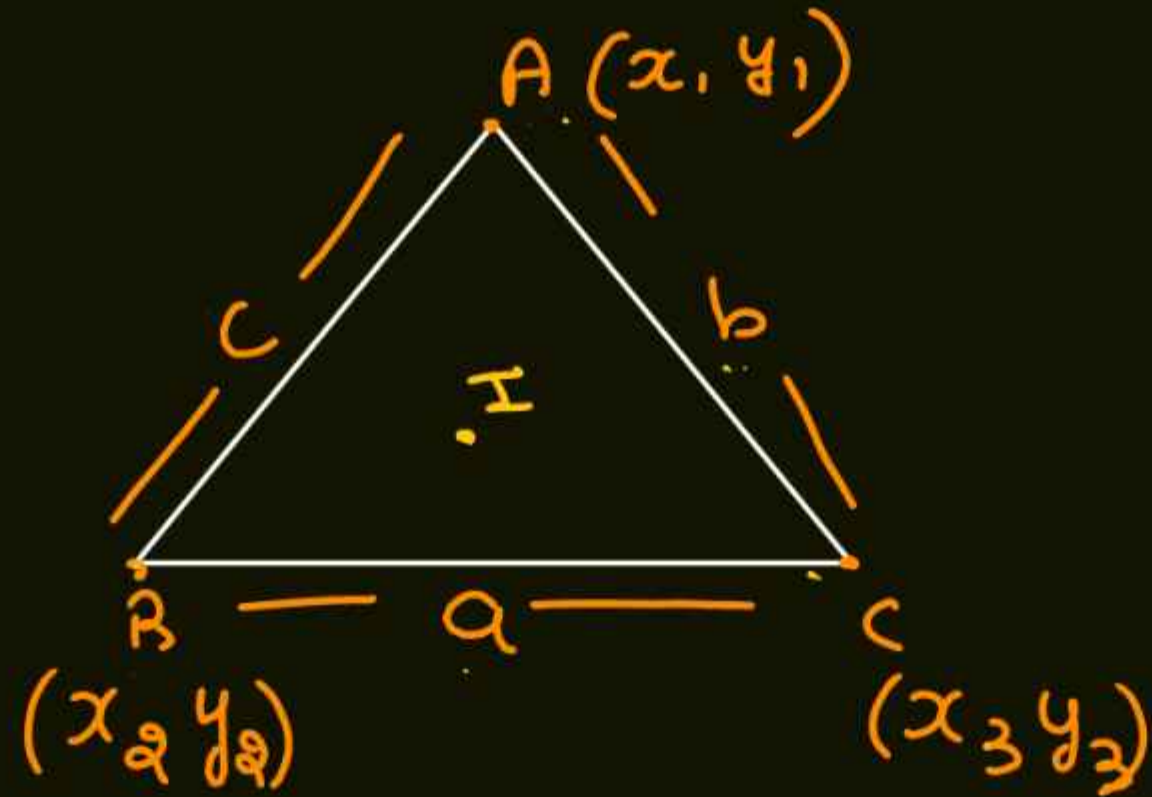
TRIANGLE

CENTROID (केन्द्रबिंदु)

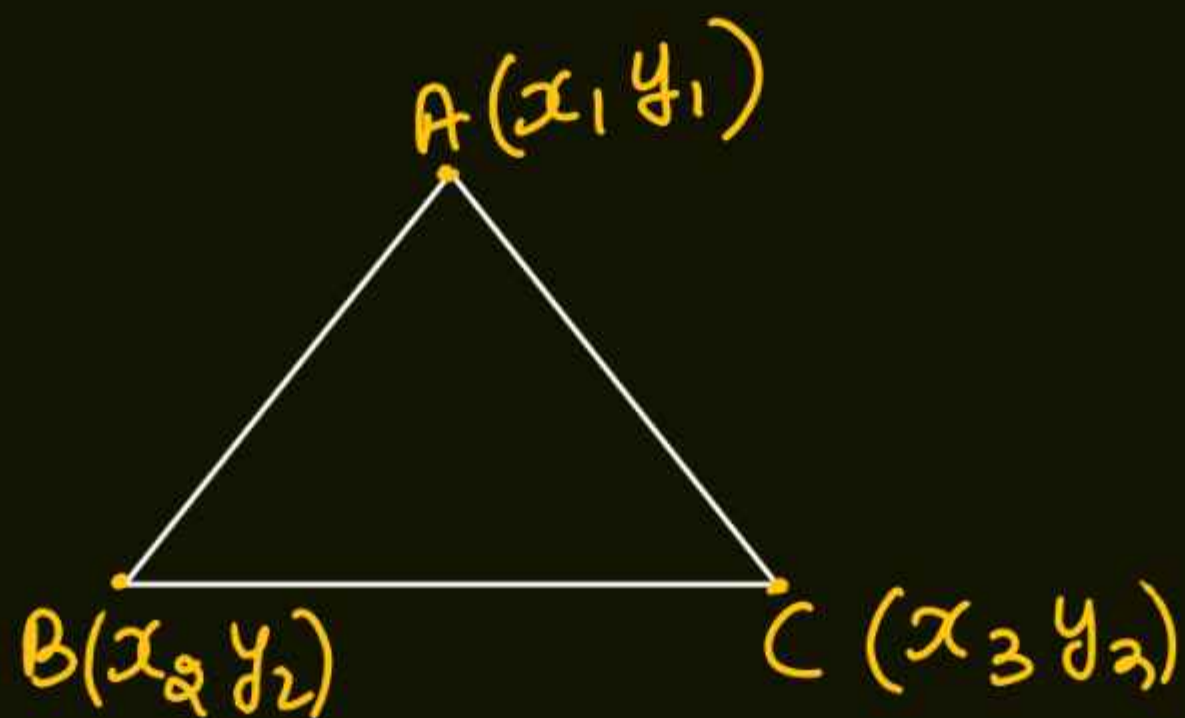
$$G = \left\{ \frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right\}$$



Incenter (अंतःकेन्द्र)

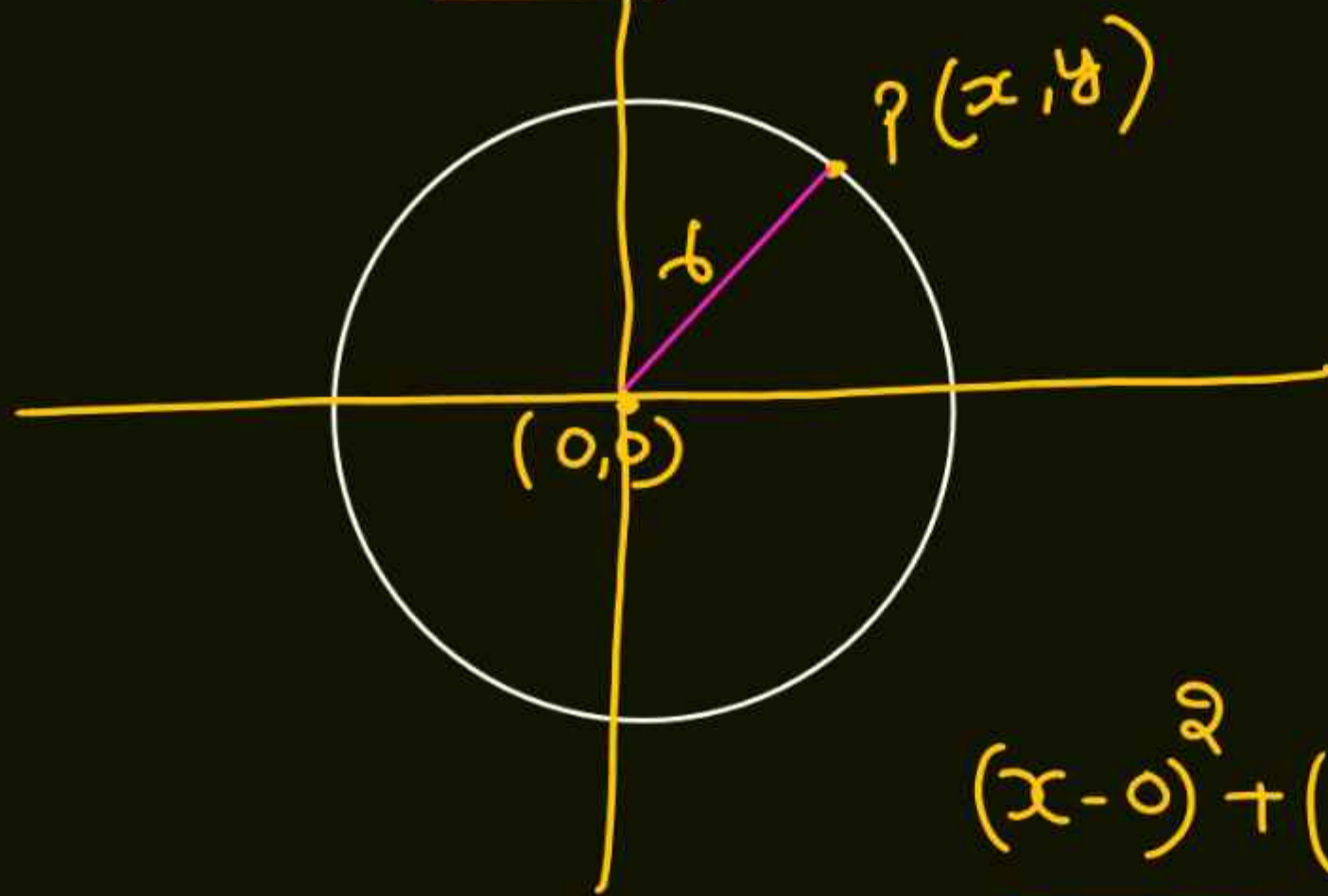


$$I = \left\{ \frac{ax_1 + bx_2 + cx_3}{a+b+c}, \frac{ay_1 + by_2 + cy_3}{a+b+c} \right\}$$



$$\text{Area of } \Delta = \frac{1}{2} \left[x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2) \right]$$

CIRCLE (गुण)



$$(x-0)^2 + (y-0)^2 = r^2$$

$$r^2 = x^2 + y^2$$

General eqn.

$$x^2 + y^2 + \underline{2gx} + \underline{2fy} + \underline{c} = 0$$

$$2gx = -2hx$$

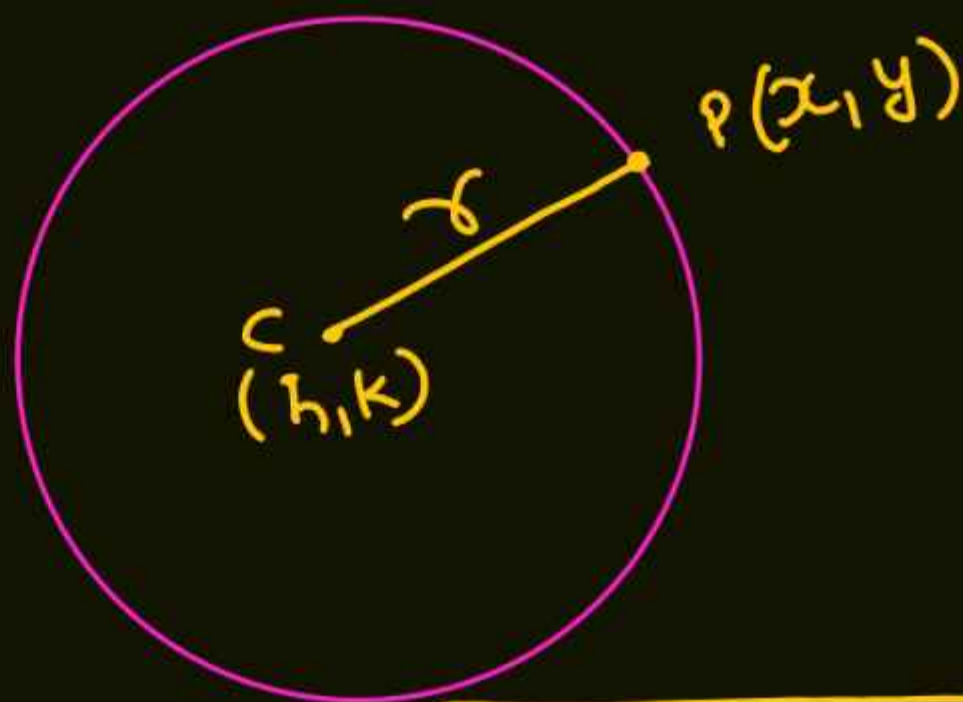
$$g = -h$$

$$f = -k$$

$$c = h^2 + k^2 - r^2$$

$$r^2 = h^2 + k^2 - c$$

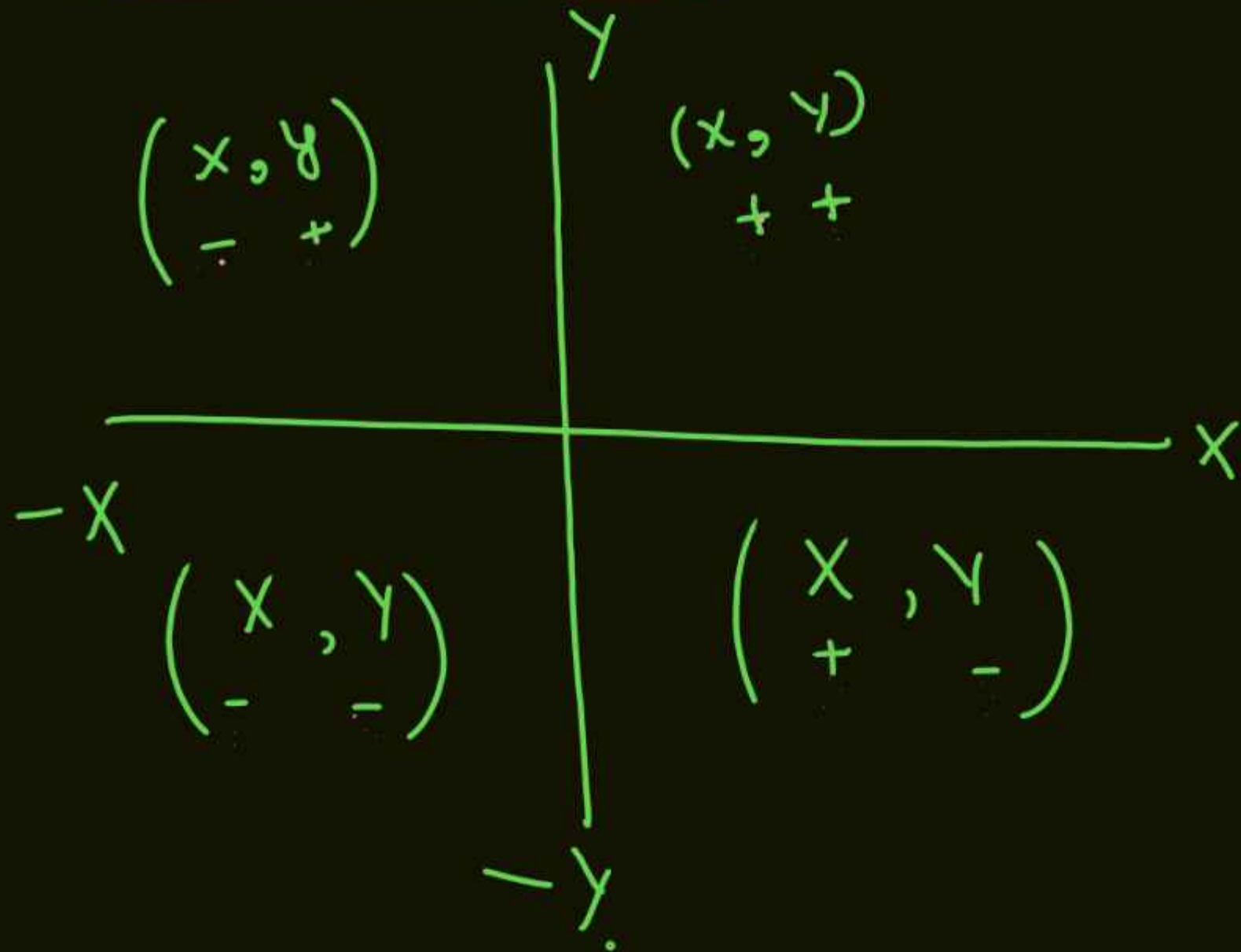
$$r = \sqrt{h^2 + k^2 - c}$$



$$r^2 = (x-h)^2 + (y-k)^2$$

$$x^2 + h^2 - 2hx + y^2 + k^2 - 2ky = r^2$$
$$x^2 + y^2 - \underline{2hx} - \underline{2ky} + \underline{h^2 + k^2} - r^2 = 0$$

Reflection (यिन्वयन)



(h, k)
x-axis

y-axis

$$x = a$$

$$y = b$$

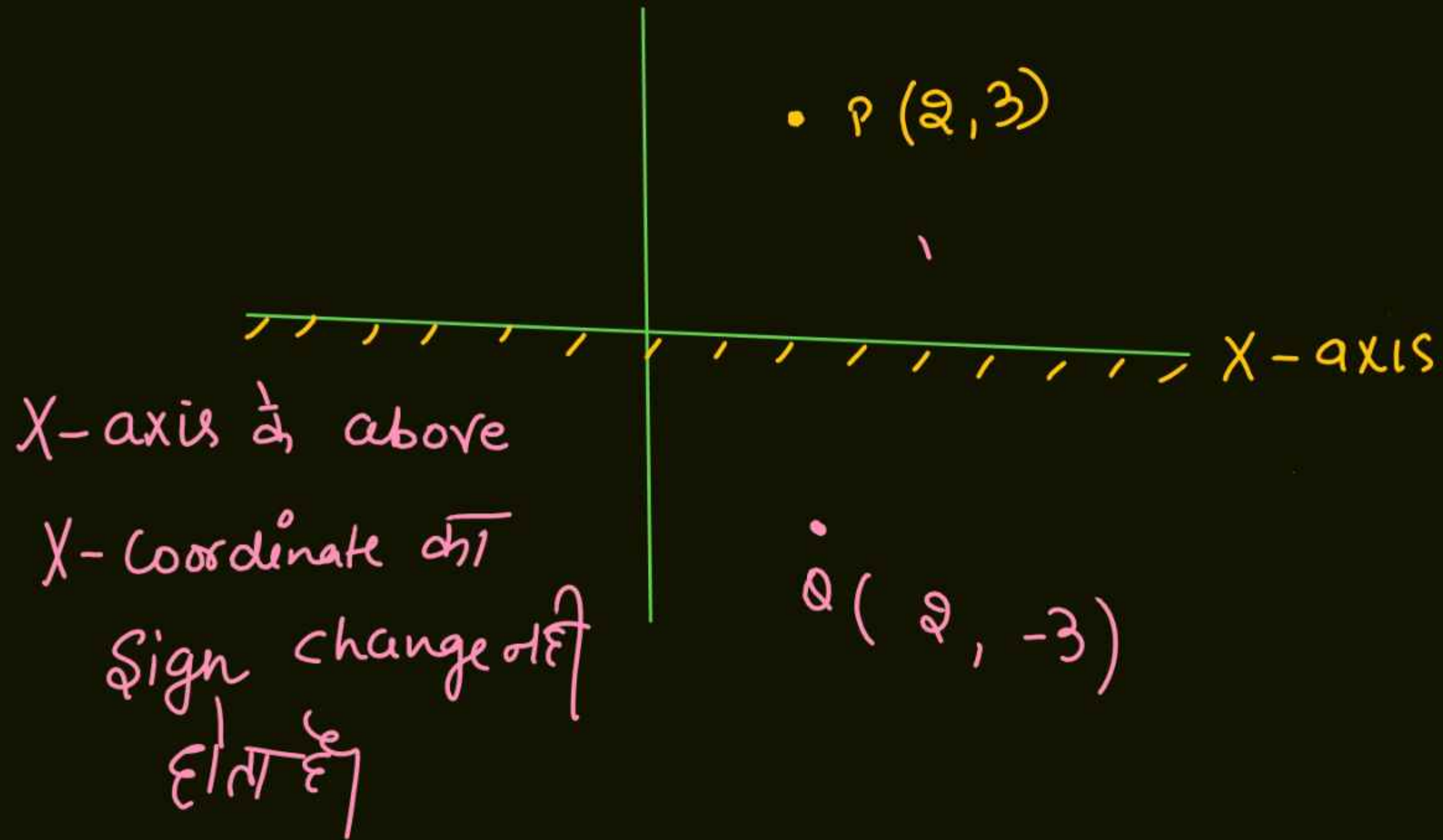
$$x = y$$

$$x = -y$$

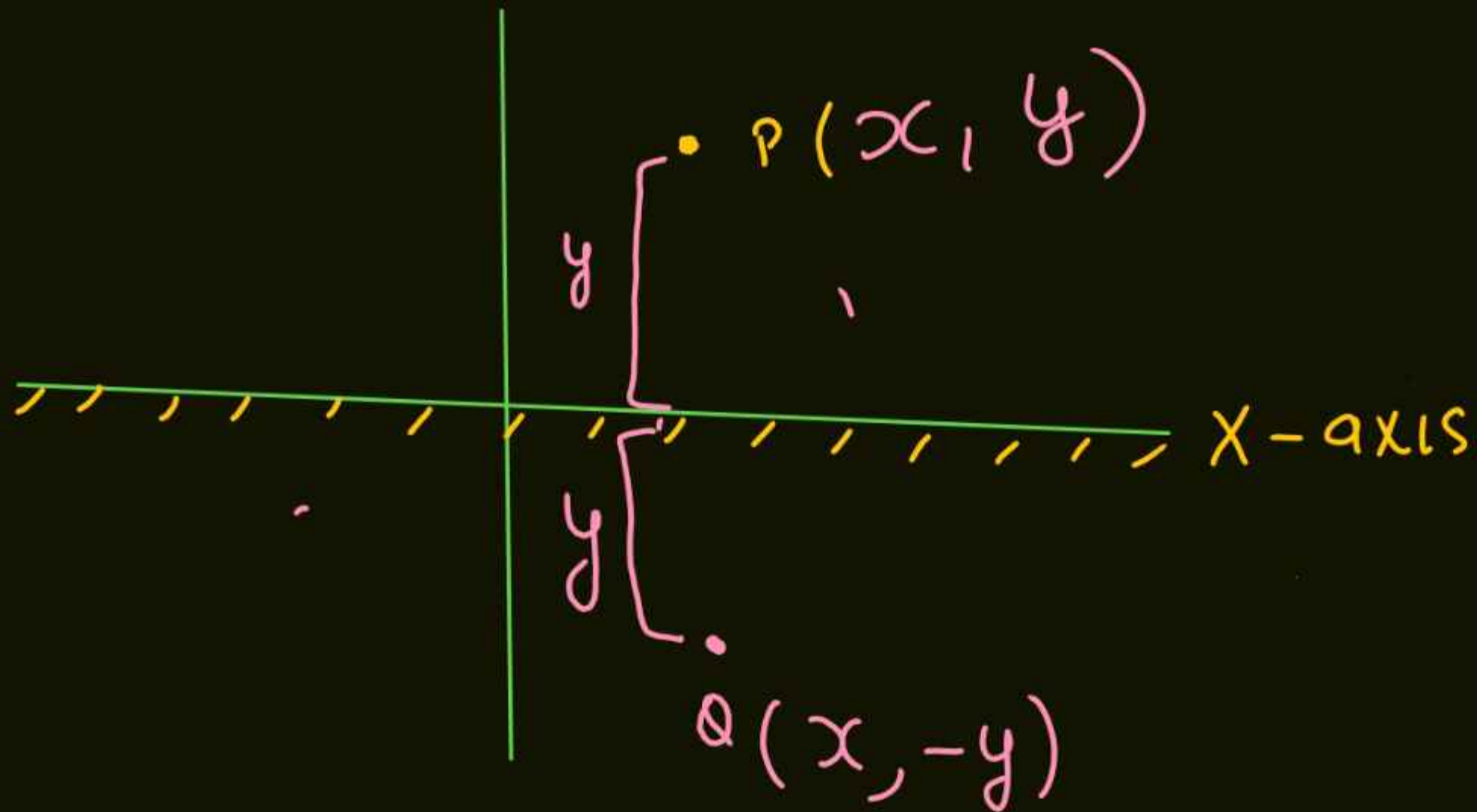
origin

$$\text{equation } (ax + by + c = 0)$$

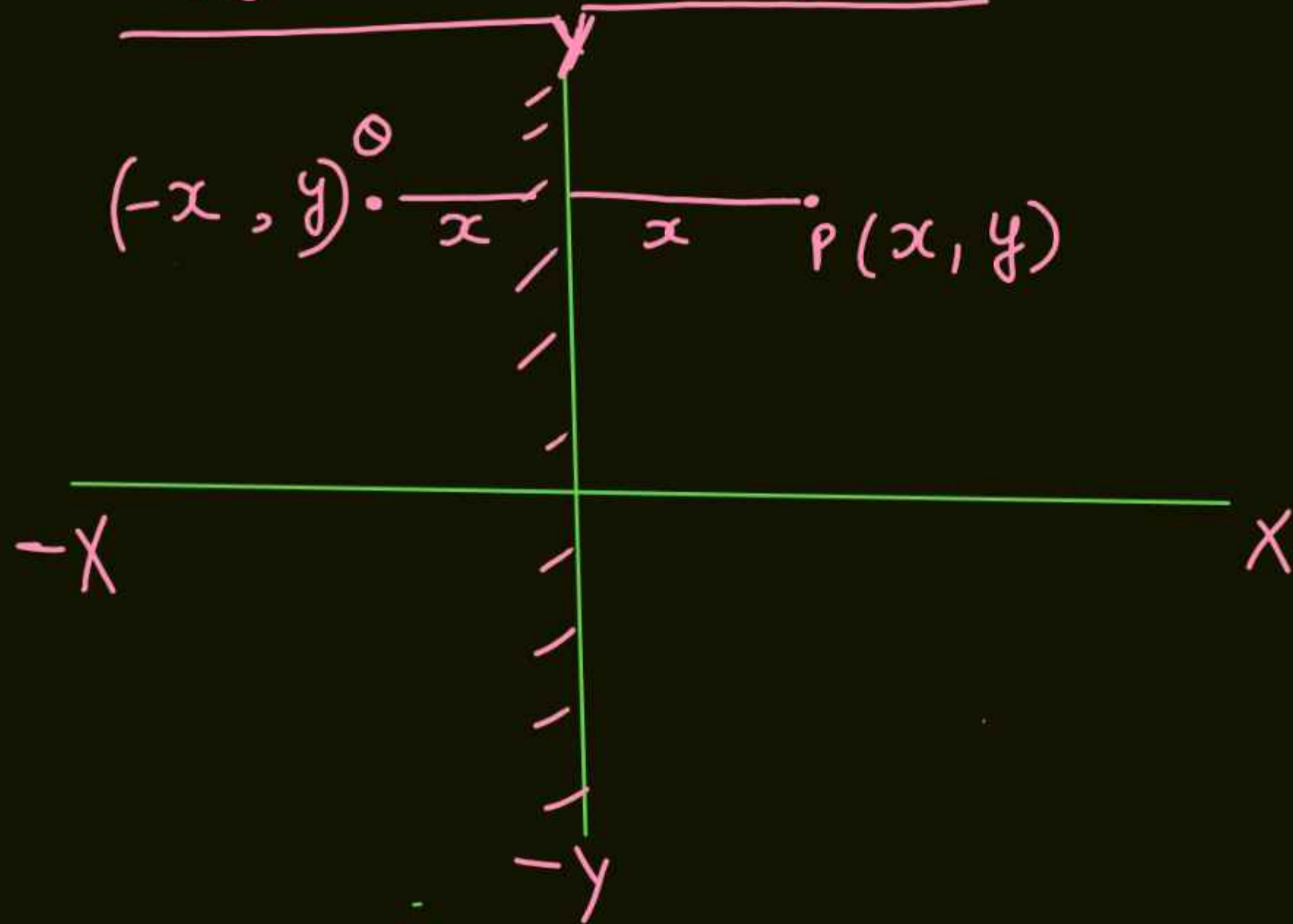
Reflection above X-axis



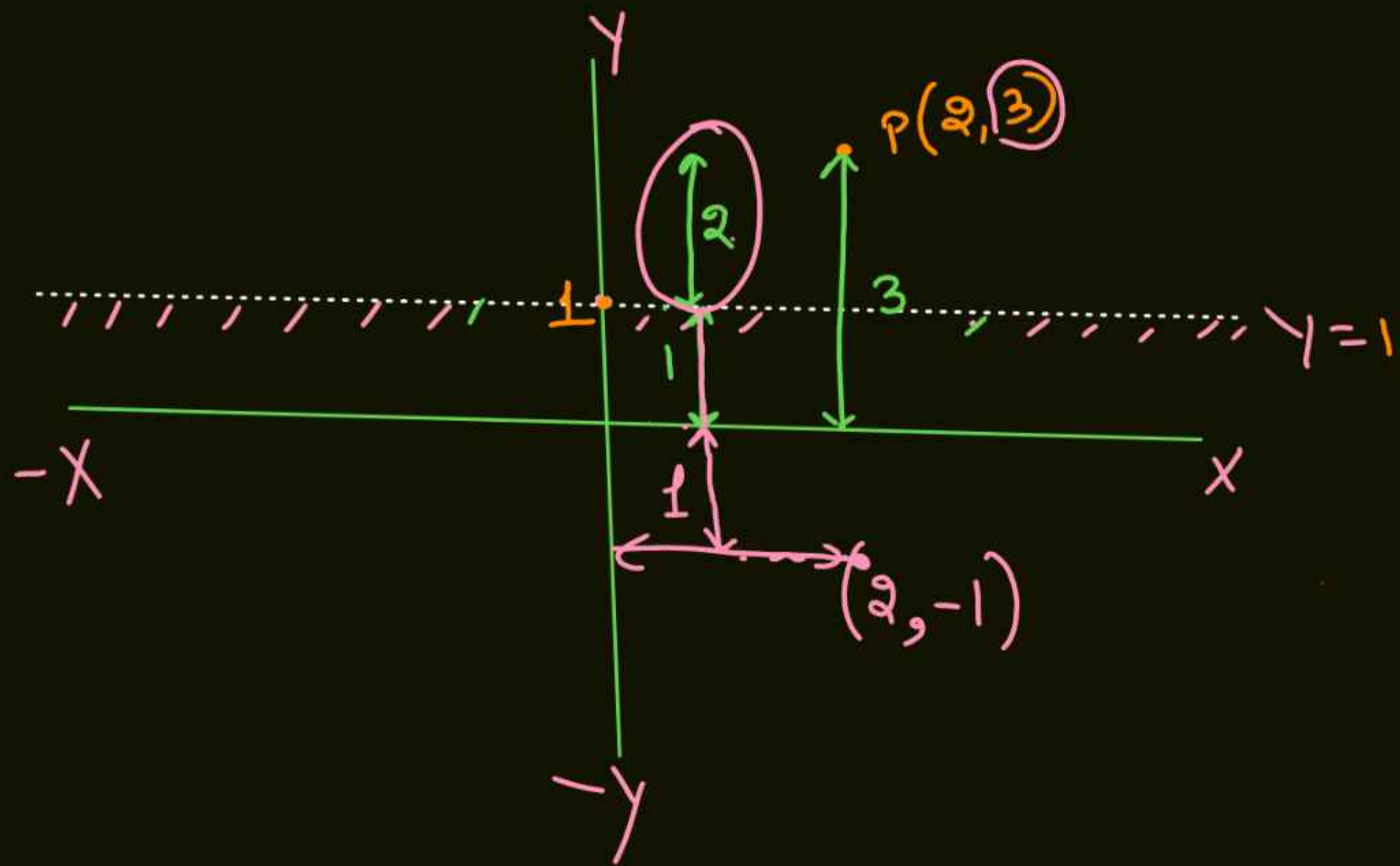
Reflection above X-axis



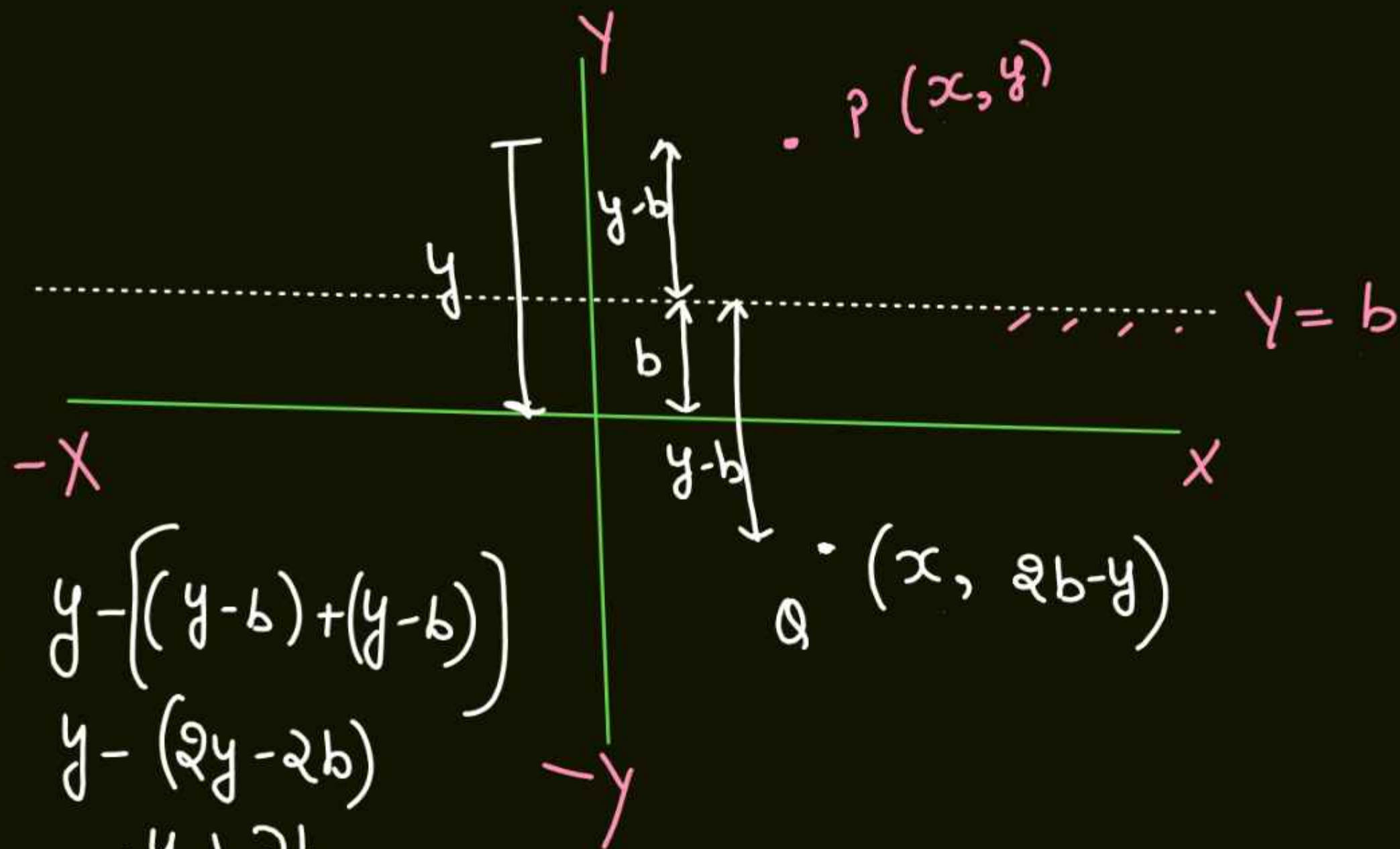
Reflection above y-axis



Reflection above: $y=b$



Reflection above $y=b$



Y coordinate $\rightarrow$

$$y - [(y-b) + (y-b)]$$

$$y - (2y - 2b)$$

$$-y + 2b$$

$$= (2b - y)$$

$$P(1, 5)$$

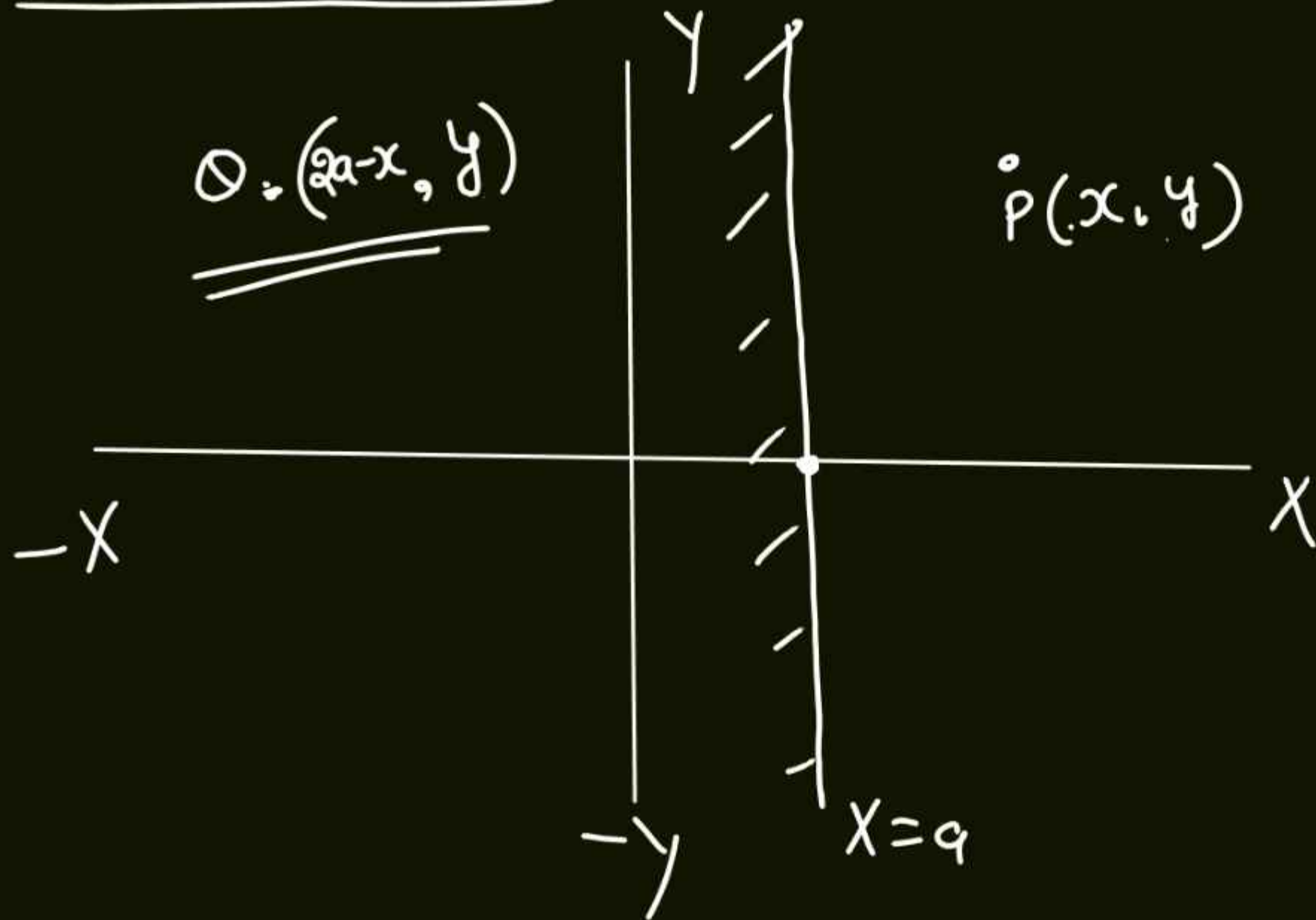
$$y = \textcircled{2}$$

Reflection coordinates = ?

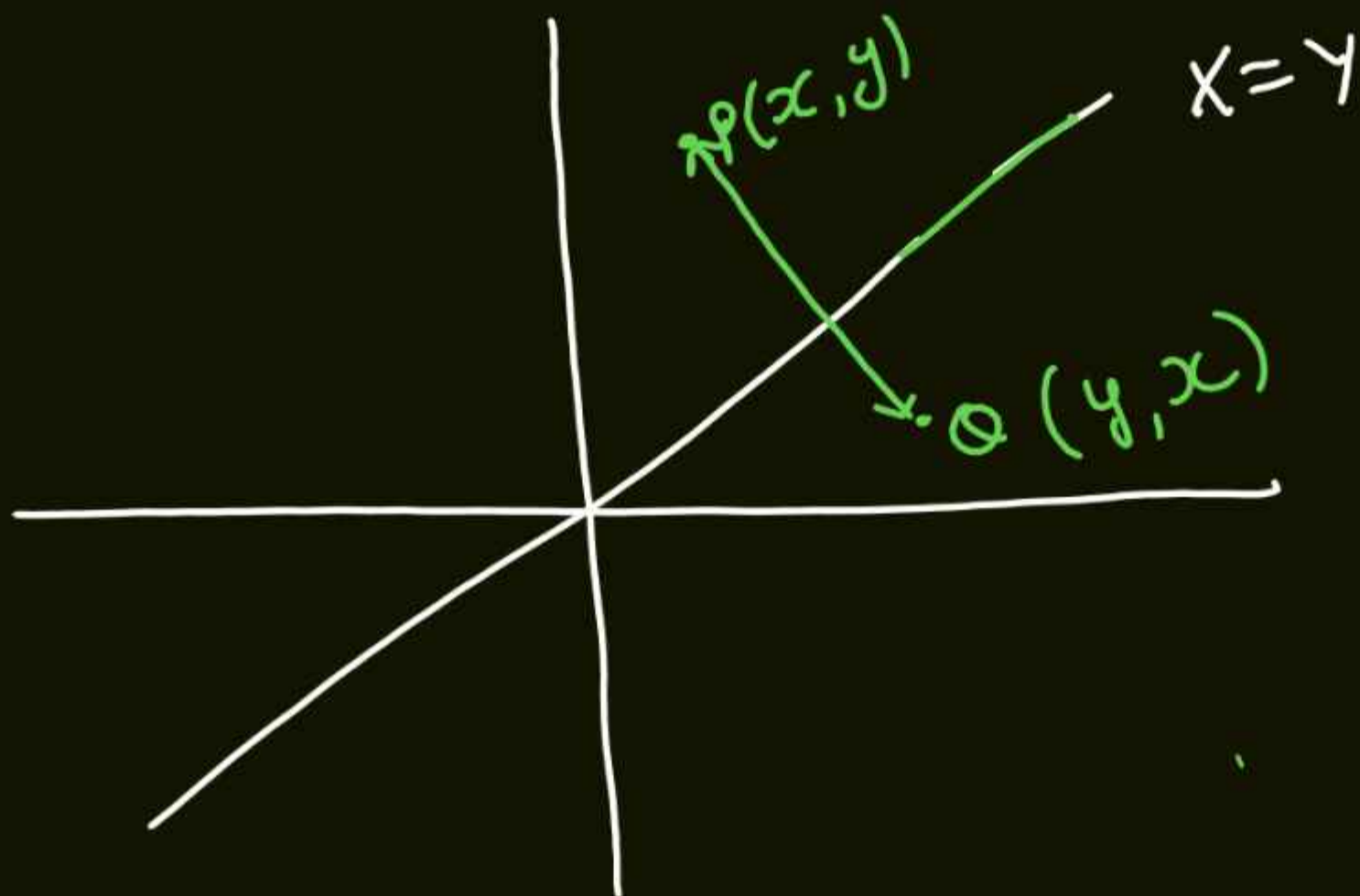
$$Q(1, 2 \times 3 - 5)$$

$$\underline{(1, 1)}$$

Reflection above $\boxed{x=a}$



Reflection above $x=y$



Reflection above $(x = -y)$

