YAKEEN NEET 2.0

2026

Basic Maths and Calculus (Mathematical Tools)

PHYSICS

Lecture -06_

By- Saleem Ahmed Bhaia

Topics to be covered

Slope of straight line

Distance formula

x & y

$$4x - 3y = 20$$
$$-4x \pm 10y = 30$$
$$\pm 13y = \pm 10$$

$$y = \frac{10}{13}$$

$$x = \frac{145}{26}$$

$$4x = 20 + 3y$$

$$4x = 20 + 3 \times \frac{10}{13}$$

$$= 20 + \frac{30}{13}$$

$$= \frac{13 \times 20}{13} + \frac{30}{13}$$

$$4x = \frac{260 + 30}{13} = \frac{290}{13}$$

* $x = A\sin(\omega t + \phi)$

$(\omega t + \phi)$ → phase

phase $\Rightarrow \omega t + \phi$

initial phase $= \phi$

* $x = A\sin(4\pi t + \pi/3)$

phase $= 4\pi t + \pi/3$

At $t = 0$, phase $= \pi/3$ = Initial phase

quadratic

AP

GP

Log

St. line

graph

St. line

parabola

Ellipse/circle/hyperbola

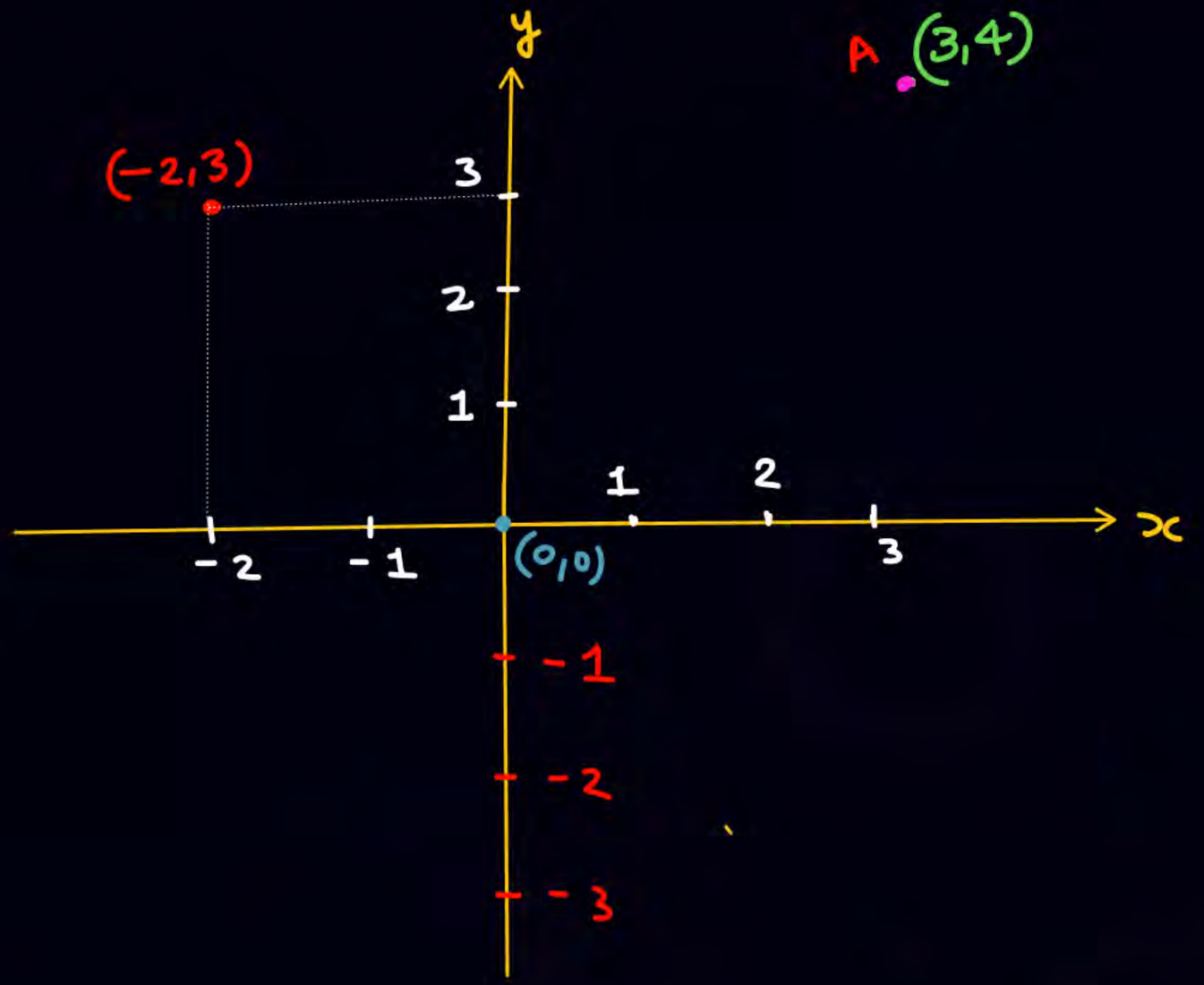
Binomial exp.

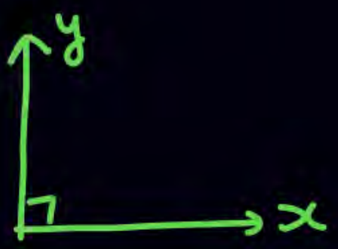
 ≡ Area/Voln

geometry.

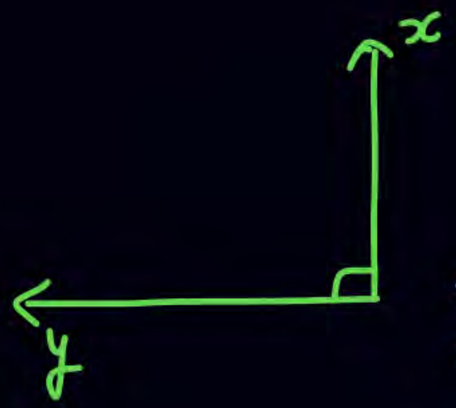
Calculus diff/integration

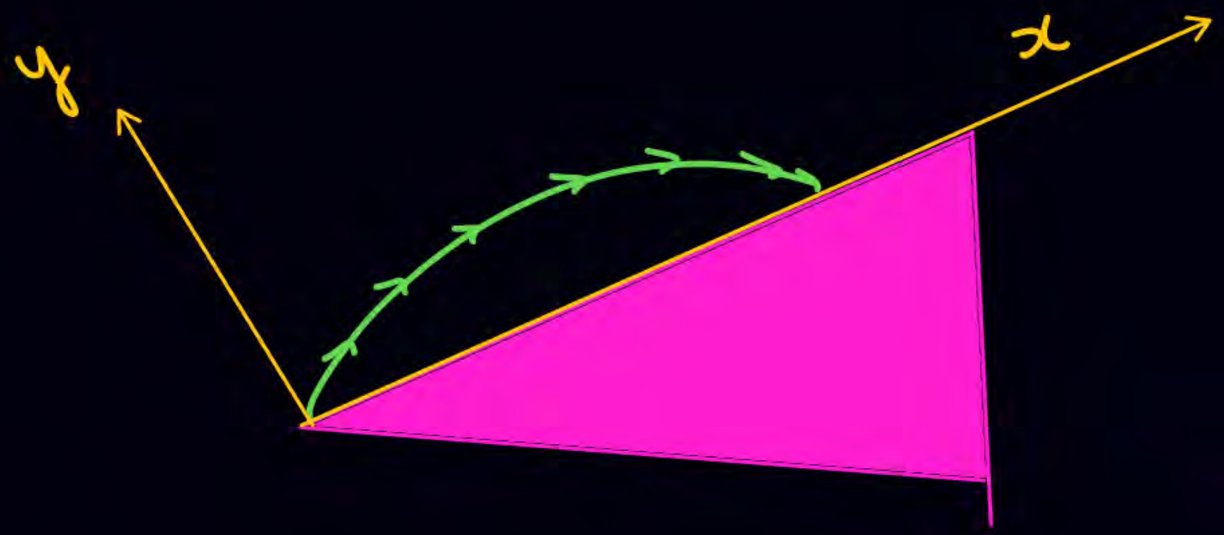
St. line


y
A (3,4)
(-2,3)
3
2
1
1
2
3
x
-2
-1
(0,0)
-1
-2
-3


y
x


y
x


x
y


y
x


y
x

Distance between two point

A (x_1, y_1) B (x_2, y_2)

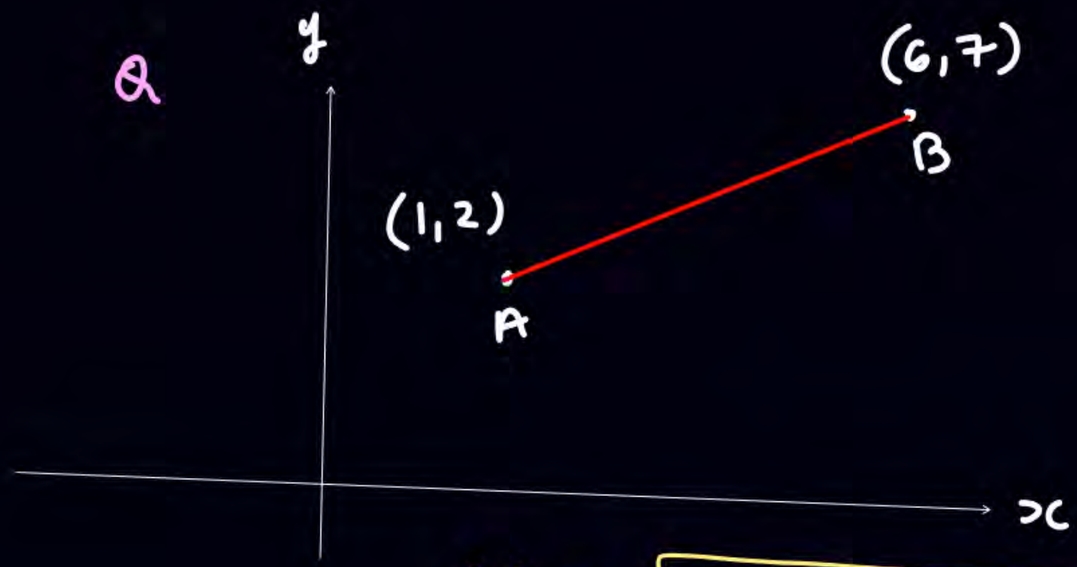
$$AB = \sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$$

Q

A $(7,3)$ B $(10,7)$

$$AB = \sqrt{(10-7)^2+(7-3)^2} = 5$$

Q



$$AB = \sqrt{(6-1)^2+(7-2)^2}$$

$$= \sqrt{25+25} = 5\sqrt{2}$$

$\Rightarrow$

A (x_1, y_1, z_1) B (x_2, y_2, z_2)

$$AB = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2 + (z_2-z_1)^2}$$

A $(2,3,4)$ B $(5,7,9)$

$$AB = \sqrt{(5-2)^2 + (7-3)^2 + (9-4)^2}$$

$$= 5\sqrt{2}$$

#

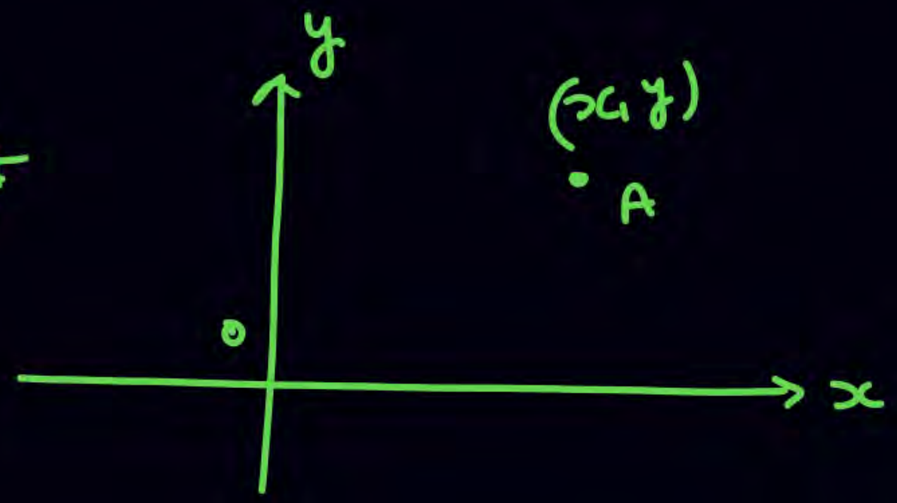
A (x_1, y_1) mid C B (x_2, y_2)

$$\text{mid point} \equiv \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

- A $(4,6)$ C mid B $(10,12)$

$$C \equiv \left(\frac{4+10}{2}, \frac{6+12}{2}\right)$$

$$C \equiv (7, 9)$$

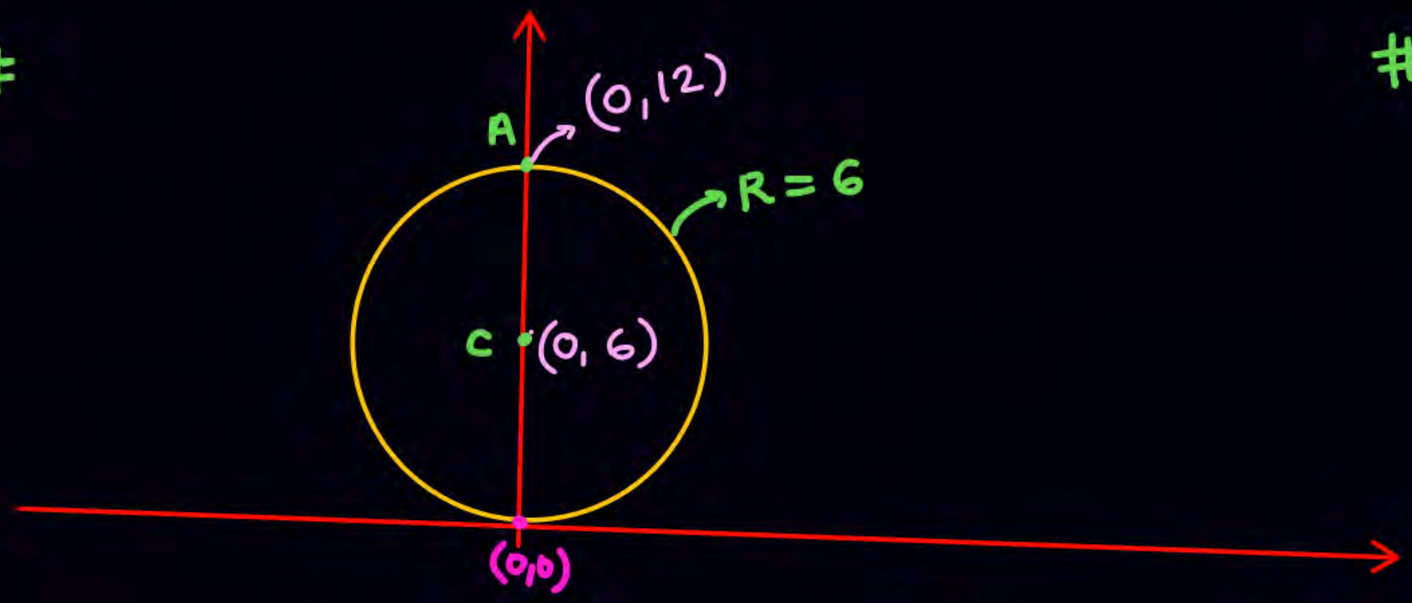


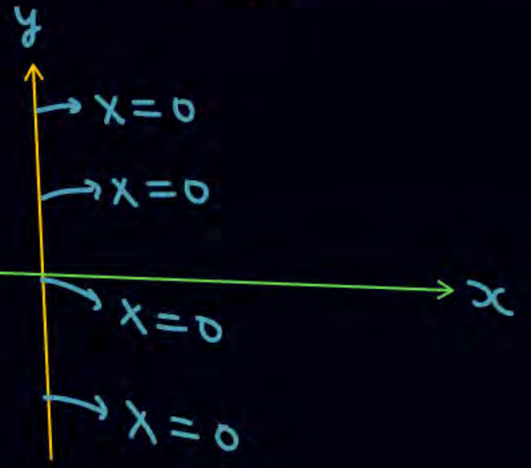
$OA = \sqrt{x^2 + y^2}$

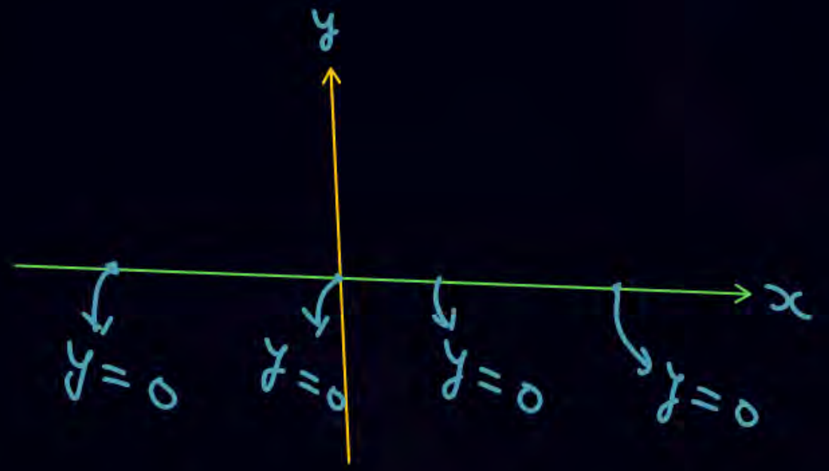
P (x, y, z)

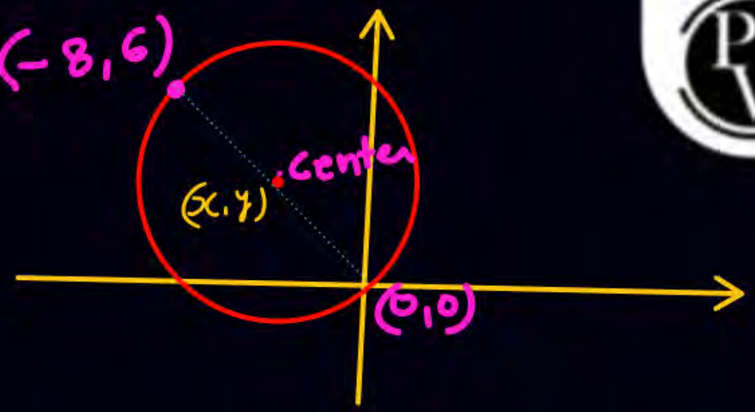
Distance of 'P' from origin

$= \sqrt{x^2 + y^2 + z^2}$









Co-ordinate of Centerwa

$= $

$x = \frac{0+(-8)}{2} = -4$

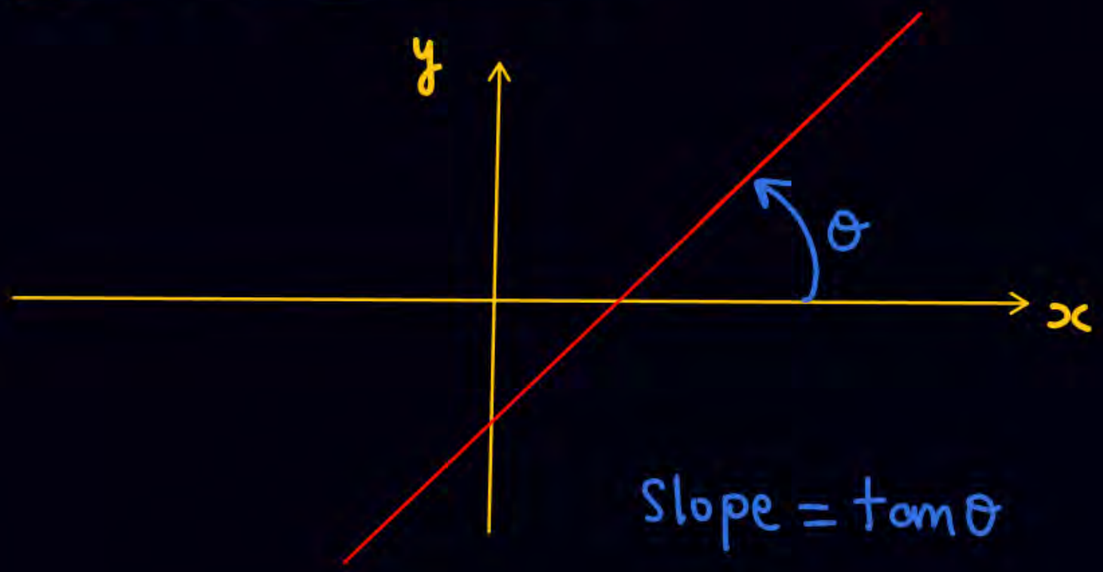
$y = \frac{0+6}{2} = 3$

Radius of circle

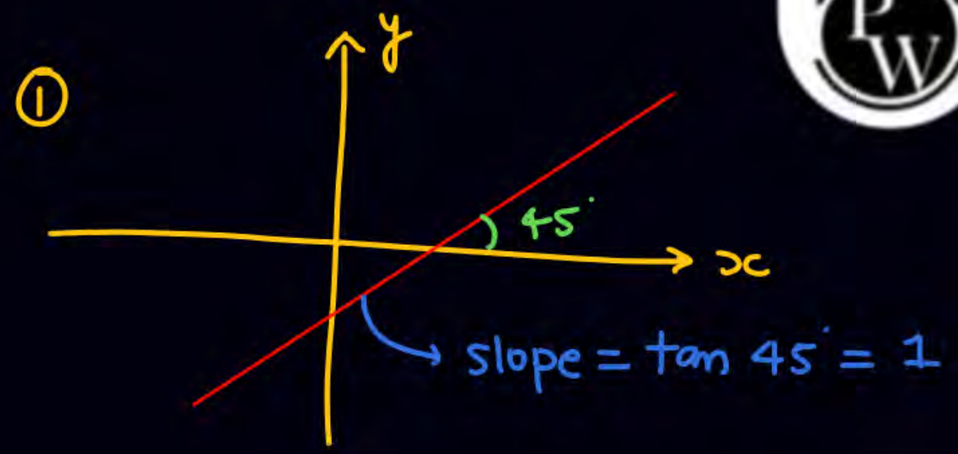
$= \sqrt{x^2+y^2}$

$= \sqrt{(-4)^2+3^2} = 5$

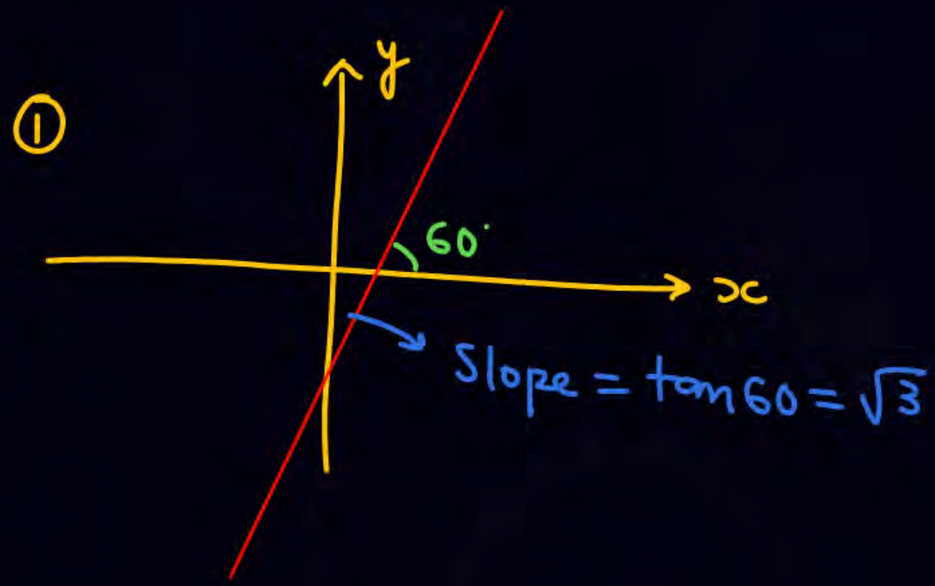
Slope of straight line



Slope = $\tan\theta$



Slope = $\tan 45^\circ = 1$

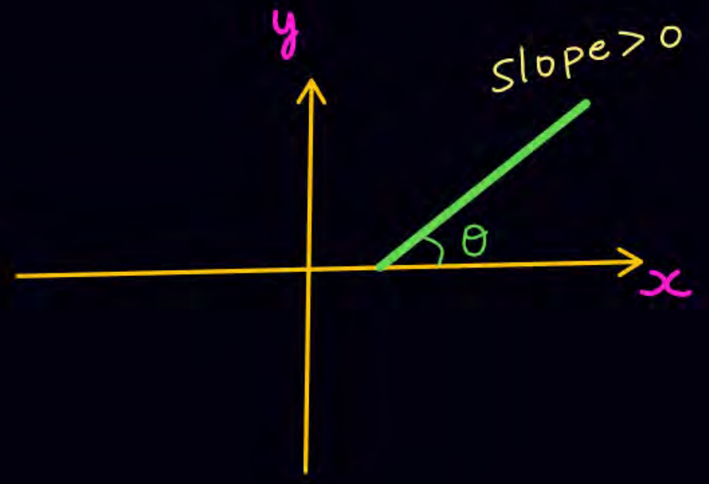


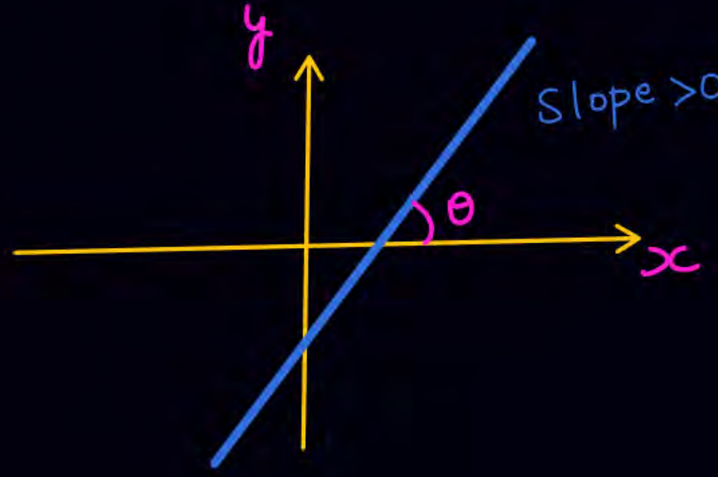
Slope = $\tan 60 = \sqrt{3}$

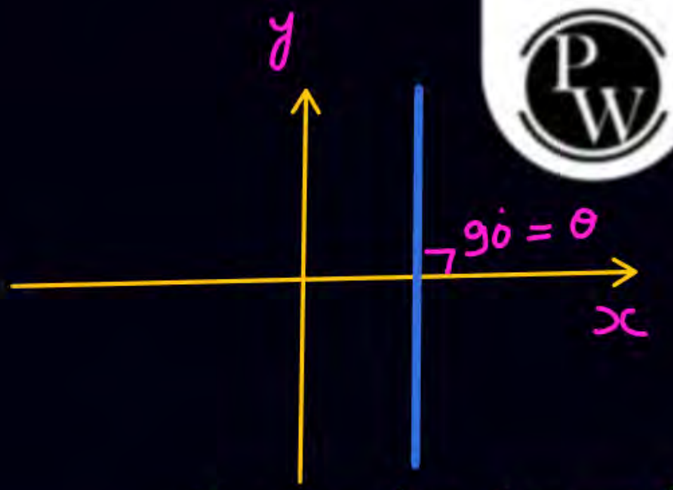
SKC

① अगर st. line आधी अधूरी है तो उसे Complete कर लो

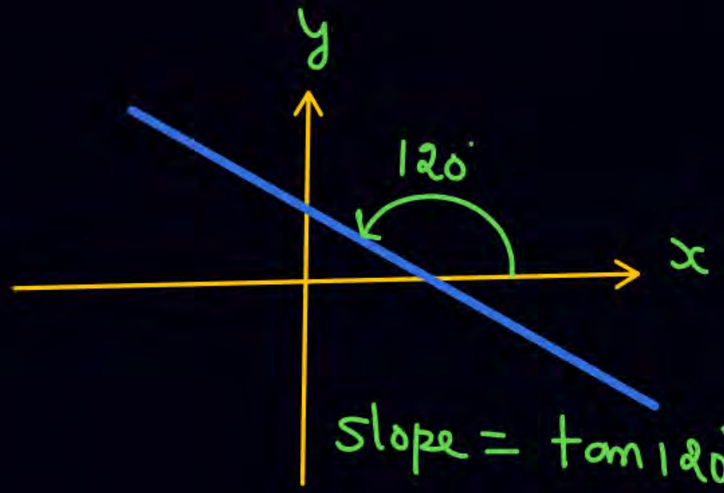
② slope का मतलब होता है
अगर line ने +ve-x-Axis के साथ θ angle बनाया तो $\underline{\text{Slope} = \tan\theta}$







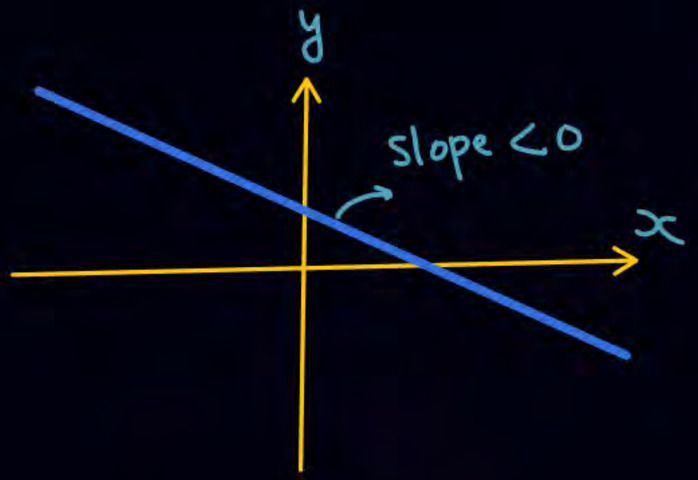
Slope = tan 90° ⟶ ∞



Slope = tan 120°

$= -\sqrt{3}$

Slope < 0



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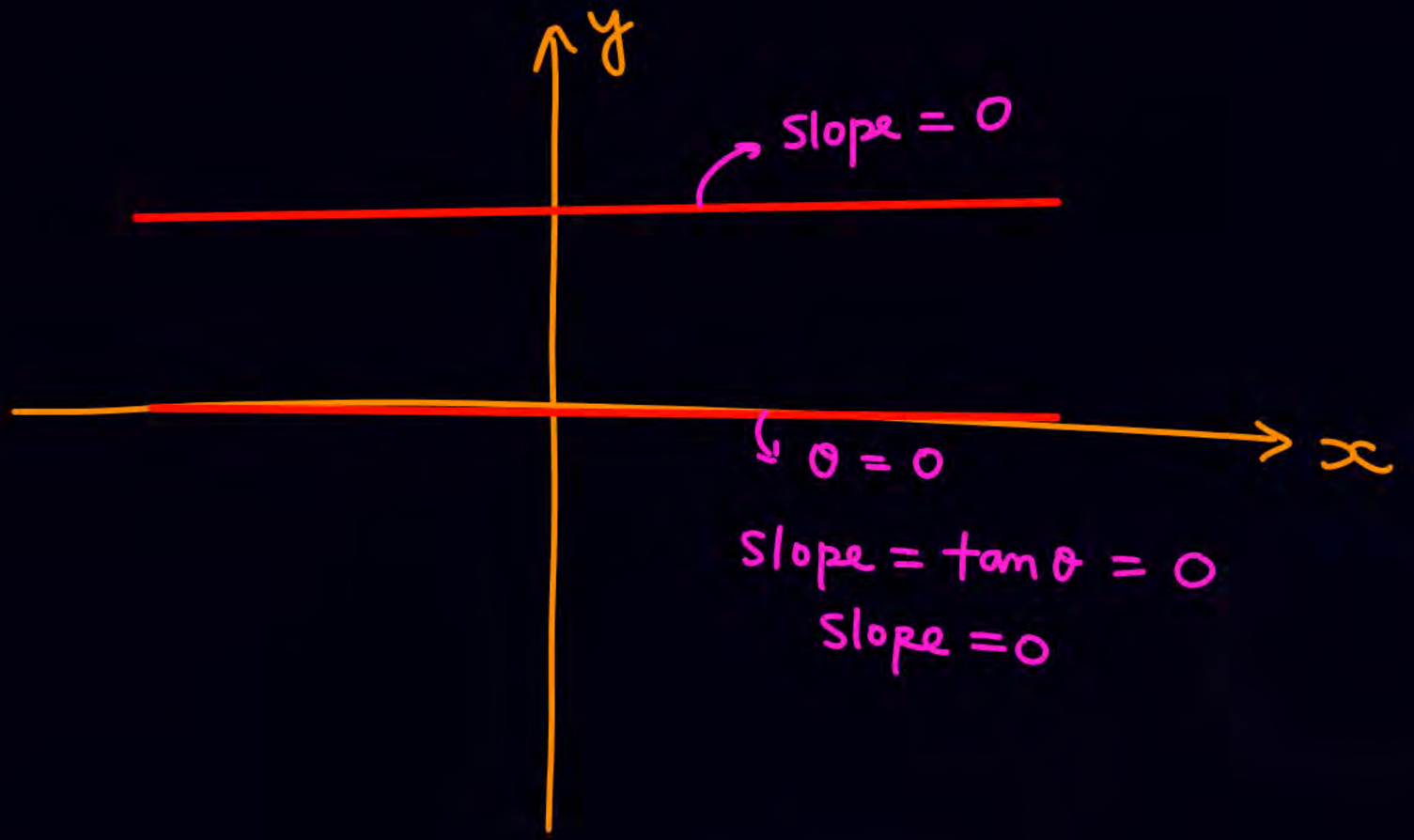

Slope = $\tan\theta = 0$

Slope = 0

If $0 < \theta < 90 \Rightarrow$ $\tan\theta \longrightarrow$ positive, slope > 0

(1^{st} quad.)

$90 < \theta < 180 \Rightarrow$ $\tan\theta \longrightarrow$ Negative slope < 0

2^{nd}

Home Work

Now try this

Q

how many collision will be there if $e = 1$, m (same)

Ans (3)

- KPP-03
- KPP-04 (will be uploaded today even.)
- Revise notes.

join it

THANK YOU