

# YAKEEN NEET 2.0

2026

(Mini Lecture For Graph)

Basic Maths and Calculus (Mathematical Tools)

PHYSICS

Lecture - 02

By - Saleem Ahmed Sir



Physics Will



## Topics to be covered

1

mini lecture for graph

2

3

4

①

$$\text{parabola} \Rightarrow y = ax^2 + bx + c$$

If  $b^2 > 4ac \rightarrow$  Two real root  $\Rightarrow$  cut x-Axis at two point

$b^2 = 4ac \rightarrow$  one real root  $\Rightarrow$  touches x-Axis ટુઅન્ટુઅર્

$b^2 < 4ac \rightarrow$  No real root  $\Rightarrow$  No cut No touch

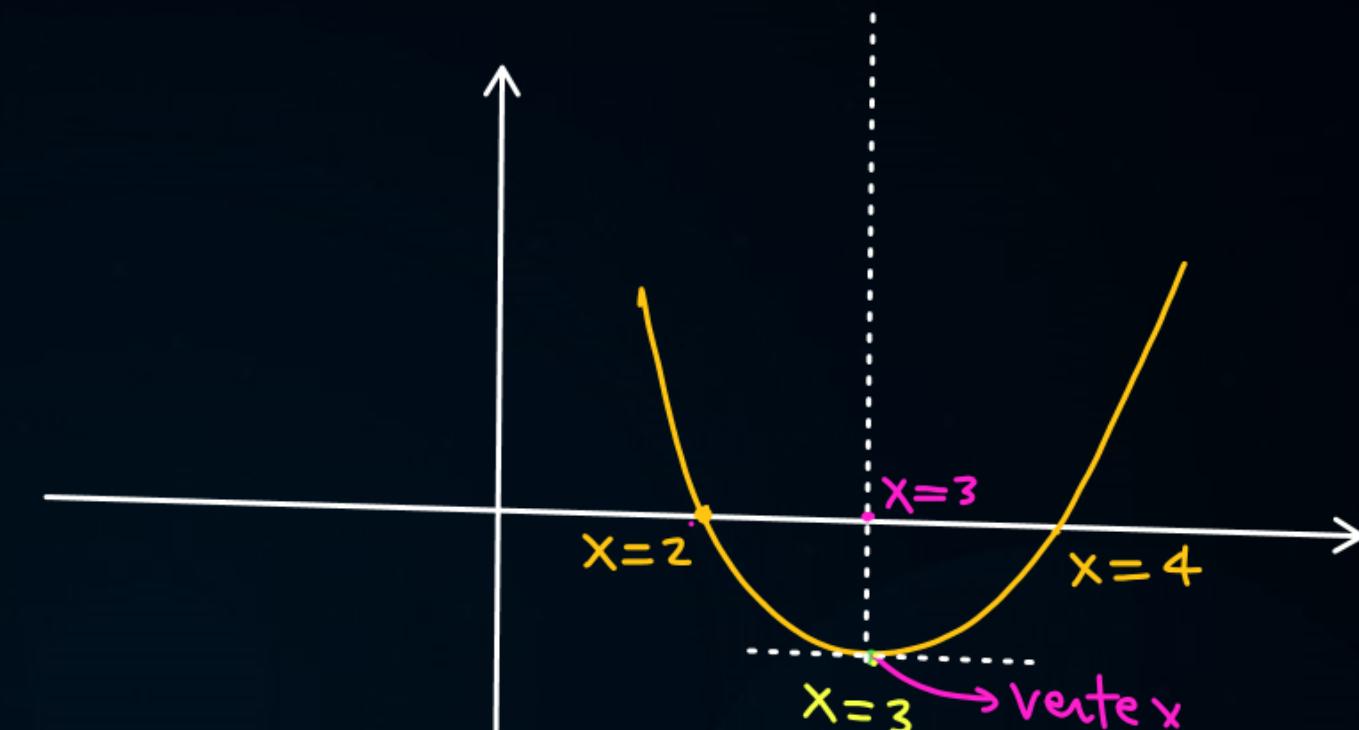
\* Parabola cuts y-Axis at 'c'.

②

$$y = x^2 - 6x + 8$$

$$y = 0, \Rightarrow (x-4)(x-2) = 0$$

$$x = 2, x = 4$$



$$\text{Slope} = 0$$

$$\frac{dy}{dx} = 0$$

$$2x - 6 = 0$$

$$\boxed{x = 3}$$

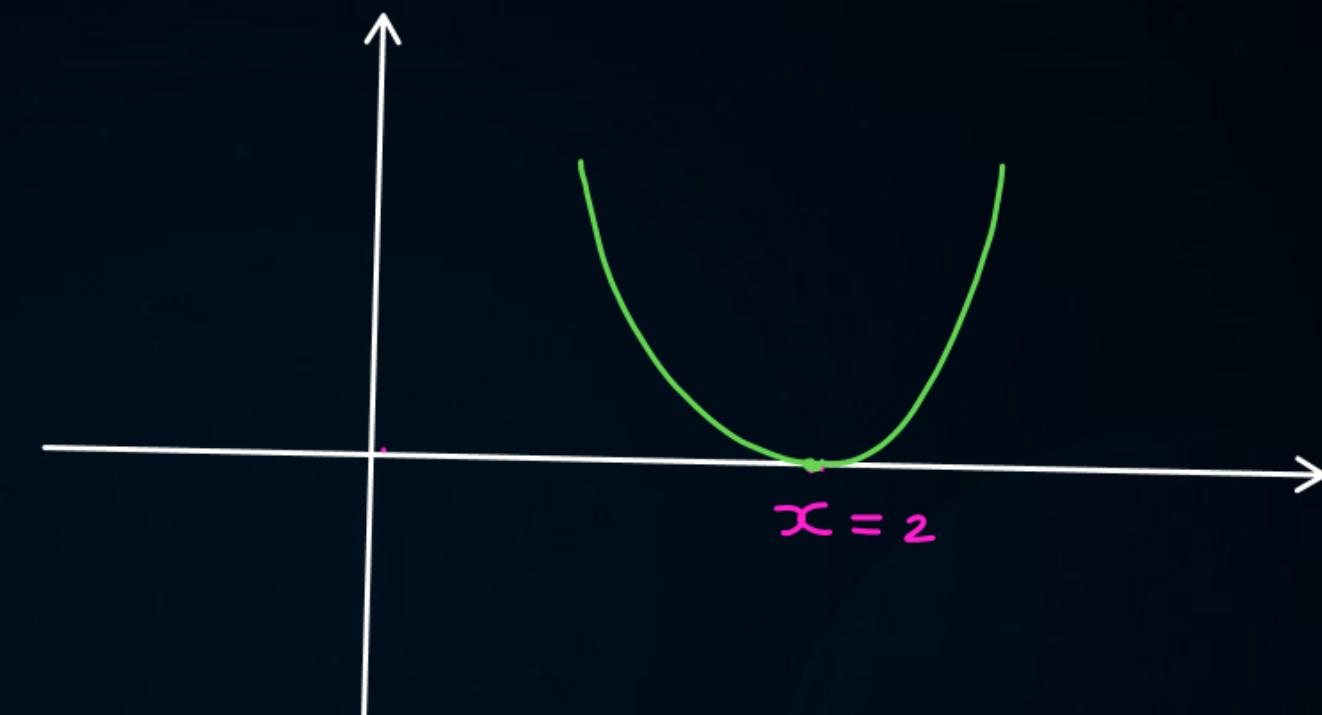
③

Draw

$$Q \quad y = x^2 - 4x + 4$$

$$y=0, \Rightarrow (x-2)(x-2) = 0$$

$$\boxed{\begin{array}{l} b^2 - 4ac = 0 \\ b^2 = 4ac \end{array}} \quad x_1 = x_2 = 2$$



$$\text{Q} \quad y = -x^2 + 4x - 3$$

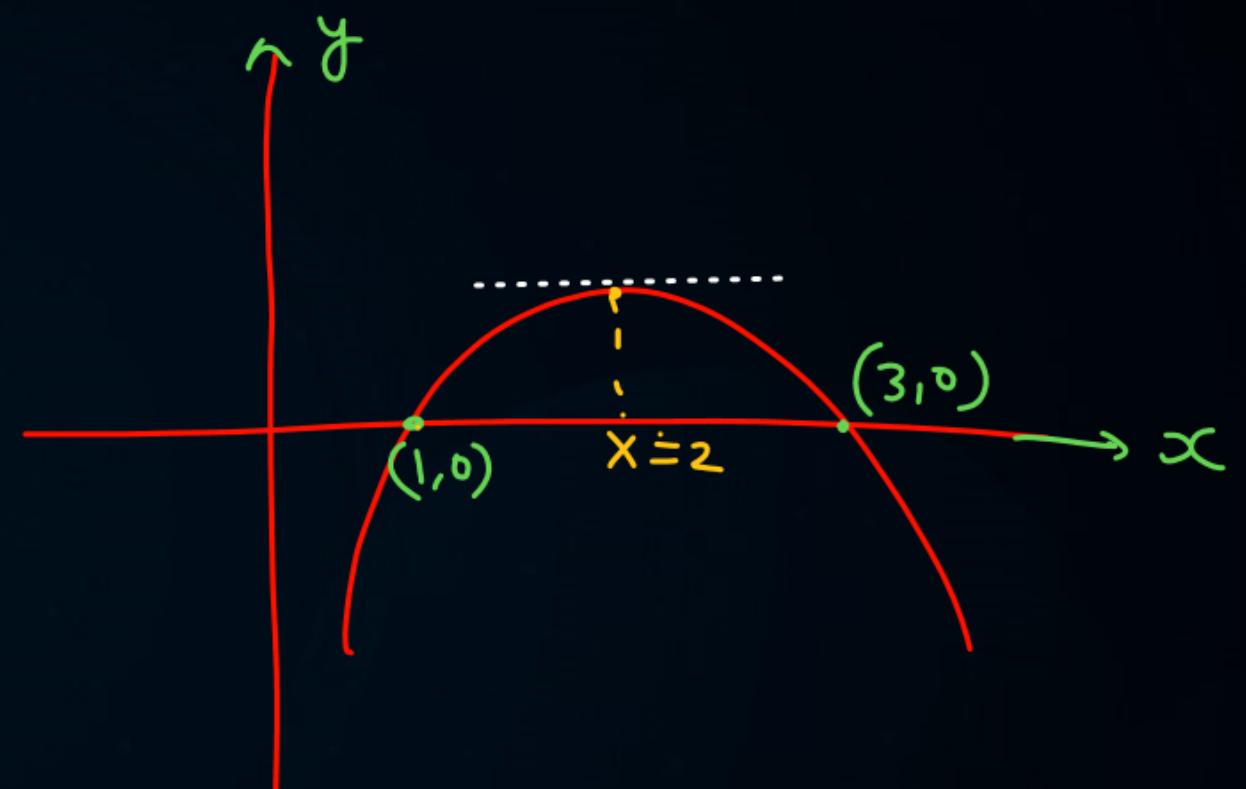
$$b^2 - 4ac = 16 - 4 \times (-1)(-3) = 4$$

$$y = 0, \Rightarrow -x^2 + 4x - 3 = 0$$

$$x^2 - 4x + 3 = 0$$

$$(x-3)(x-1) = 0$$

$$x = 1, x = 3$$

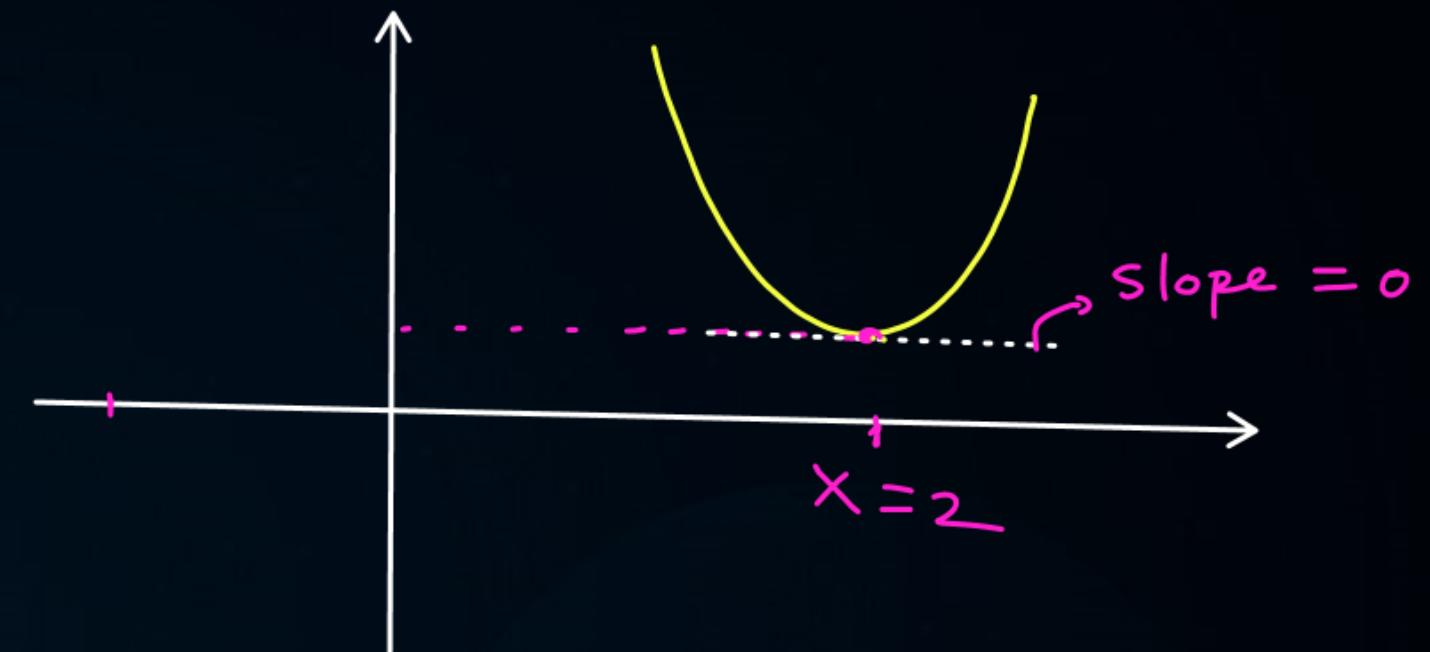


Q

$$y = x^2 - 4x + 50$$

$$\begin{aligned}b^2 - 4ac &= (-4)^2 - 4 \times 1 \times 50 \\&= -184\end{aligned}$$

$b^2 - 4ac < 0$  (No real root)



$$\frac{dy}{dx} = 2x - 4 = 0$$

$$x = 2$$

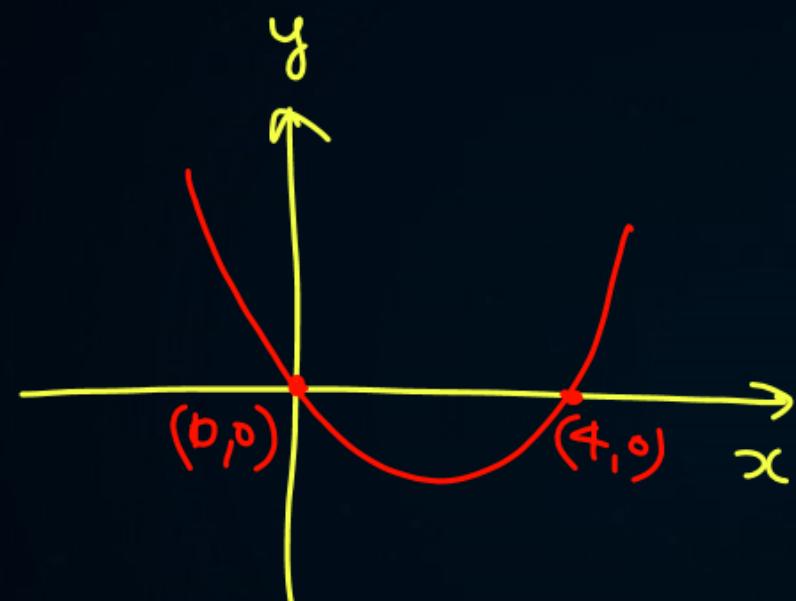
6

Draw

Q  $y = x^2 - 4x$

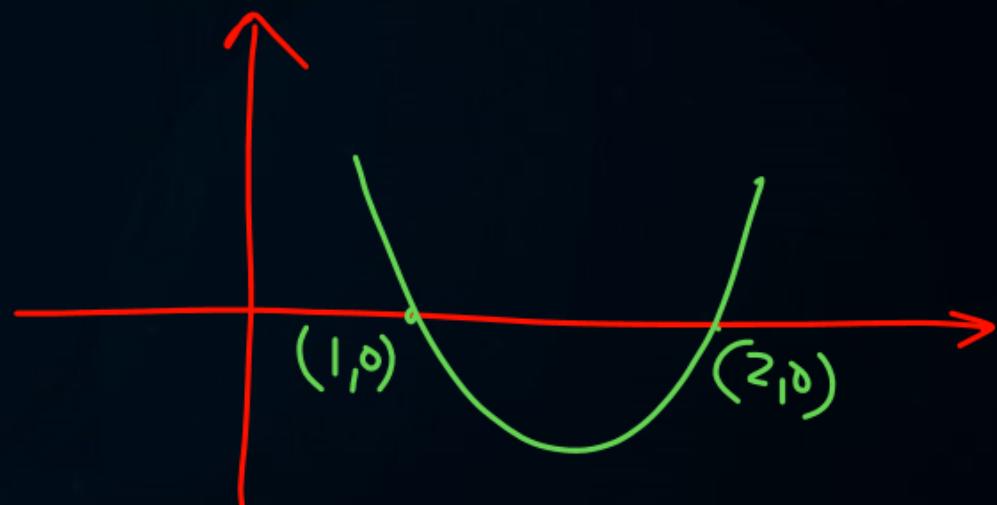
$y=0, x(x-4)=0$

$x=0, x=4$



Q  $y = x^2 - 3x + 2$

$y=0, (x-2)(x-1)=0$   
 $x=1, 2$



(X)

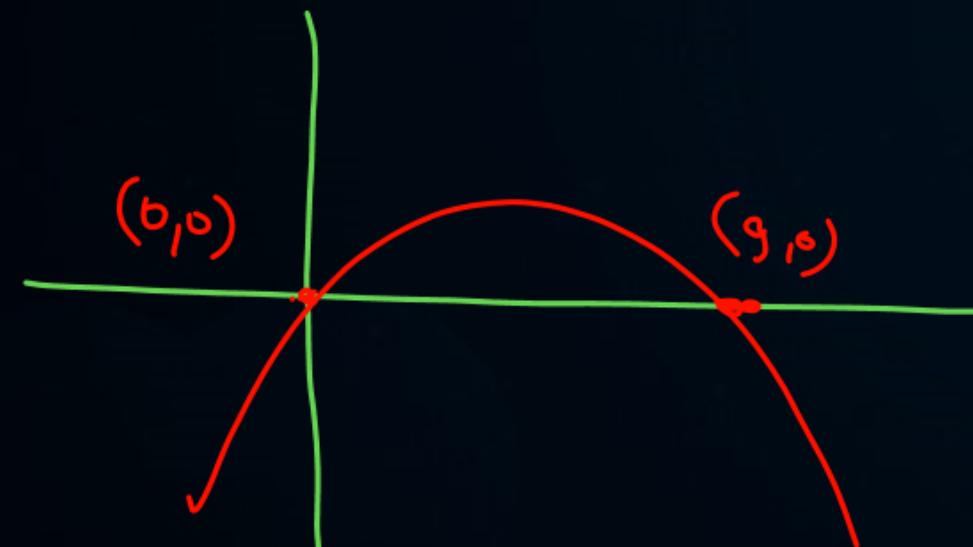
$$\Omega \quad y = -x^2 + 9x$$

$$y=0, \quad -x^2 + 9x = 0$$

$$x^2 - 9x = 0$$

$$x(x-9) = 0$$

$$x=0, \quad x=9$$



$$\Omega \quad y = x^2 - x$$

$$y=0, \quad x(x-1)=0$$

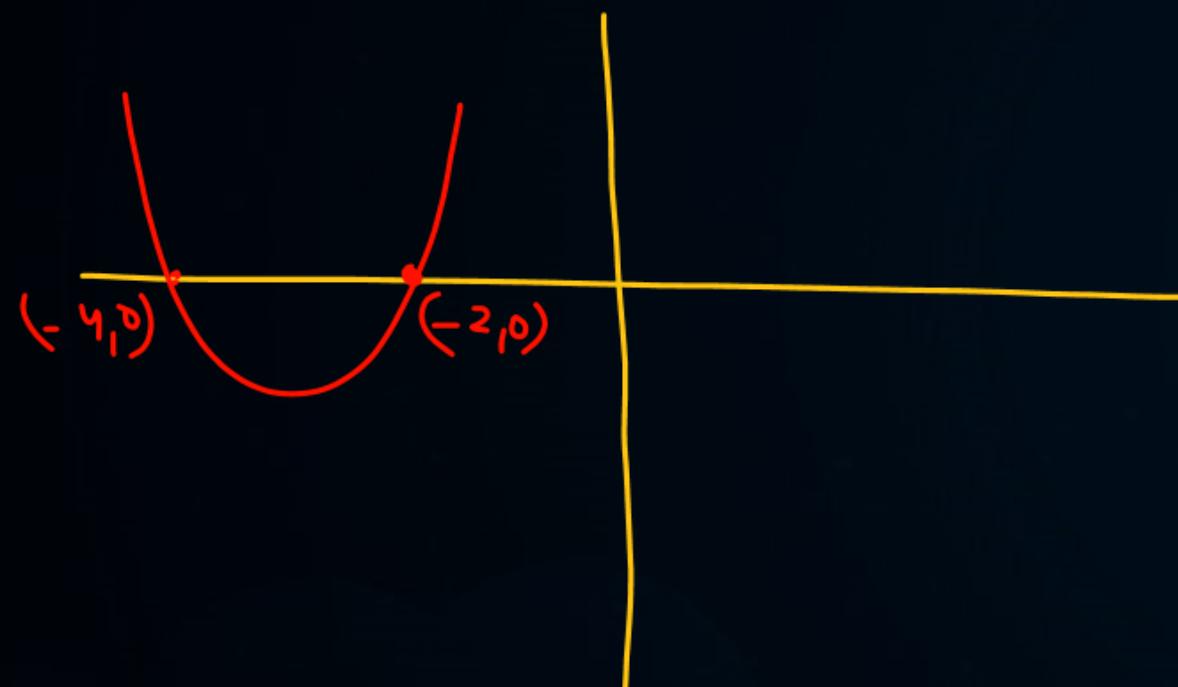
$$x=0, \quad x=1$$



⑧ Q  $y = x^2 + 6x + 8$

$$y=0, (x+2)(x+4)=0$$

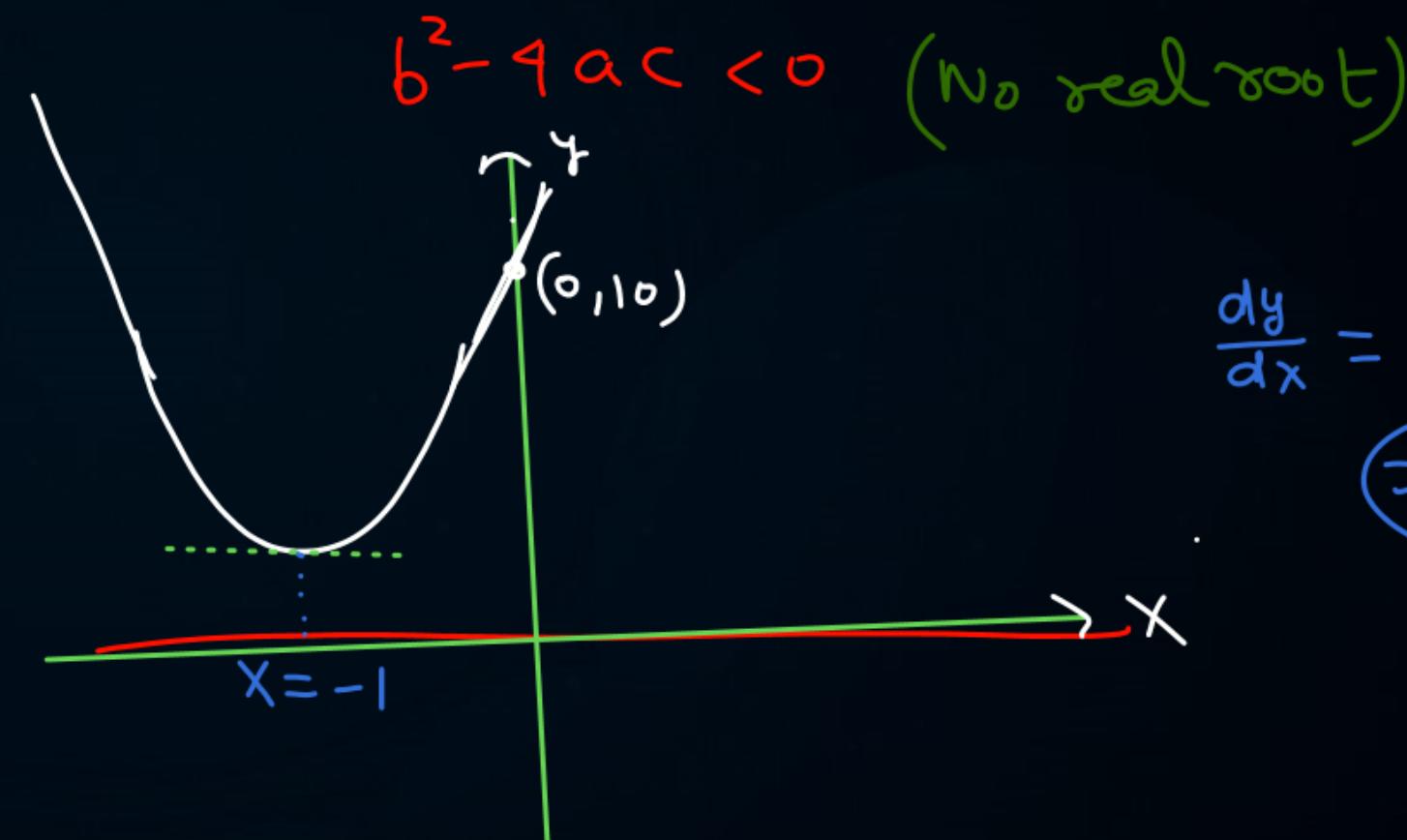
$$x = -2, x = -4$$



Q  $y = x^2 + 2x + 10$

$$y=0, b^2 - 4ac = 4 - 4 \times 1 \times 10$$

$$= 4 - 40 = -36.$$

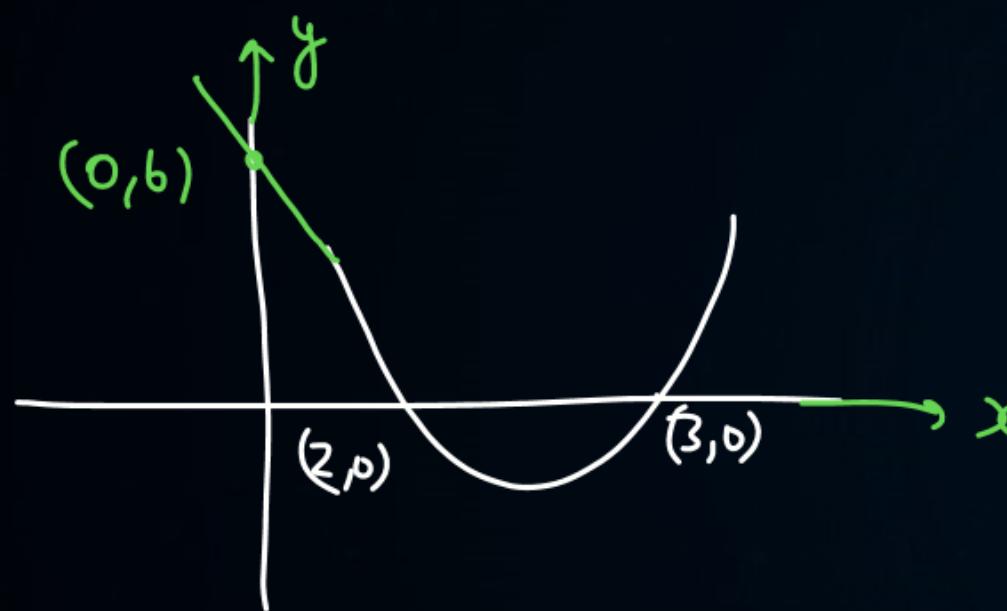


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$$y = x^2 - 5x + 6$$

$$y=0, (x-3)(x-2)=0$$

$$x=3, x=2$$

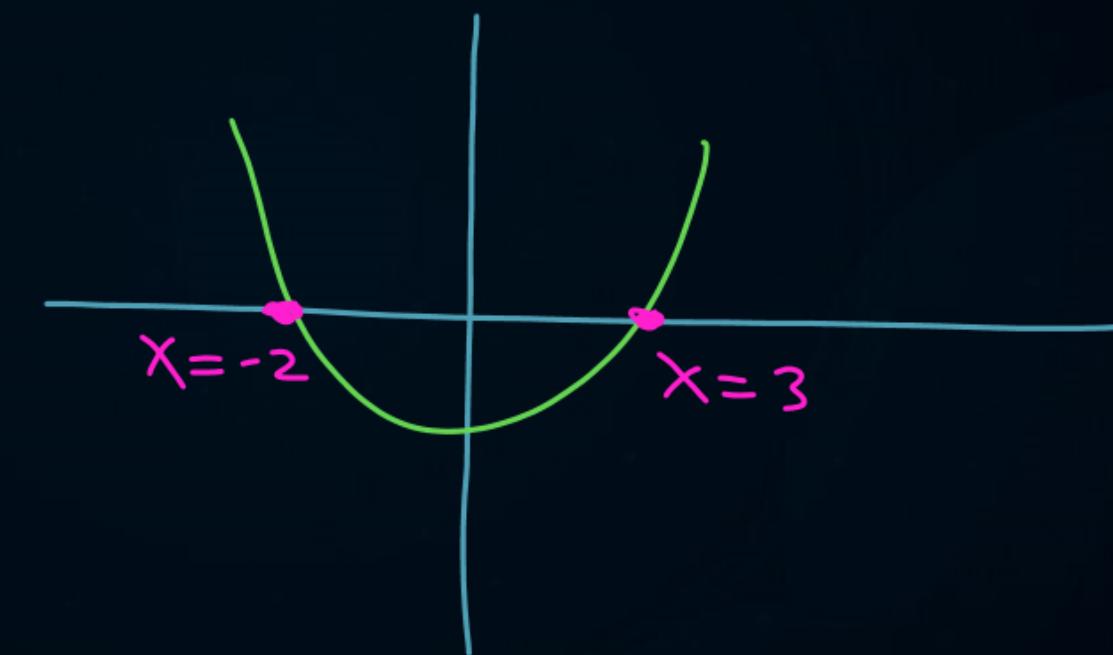


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$$x^2 - x - 6 = 0$$

$$(x-3)(x+2)=0$$

$$x=3, -2$$



(10)



Q For what value of  $k$  parabola touches the  $X$ -Axis.

$$x^2 - kx + 9 = 0$$

Sol

$$b^2 - 4ac = 0$$

$$(-k)^2 - 4 \times 1 \times 9 = 0$$

$$k^2 - 36 = 0$$

$$k^2 = 36$$

$$k = \pm 6$$

**THANK  
YOU**