YAKEEN NEET 2.0

2026

(Mini Lecture For Graph)

Basic Maths and Calculus (Mathematical Tools)

PHYSICS

Lecture - 02

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Topics to be covered

1. mini lecture for graph
2.
3.
4.

(1)

Parabola $\Rightarrow y = ax^2+bx+c$

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

$b^2 = 4ac \longrightarrow$ one real root $\Rightarrow$ touches X-Axis छुअनछुआई

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

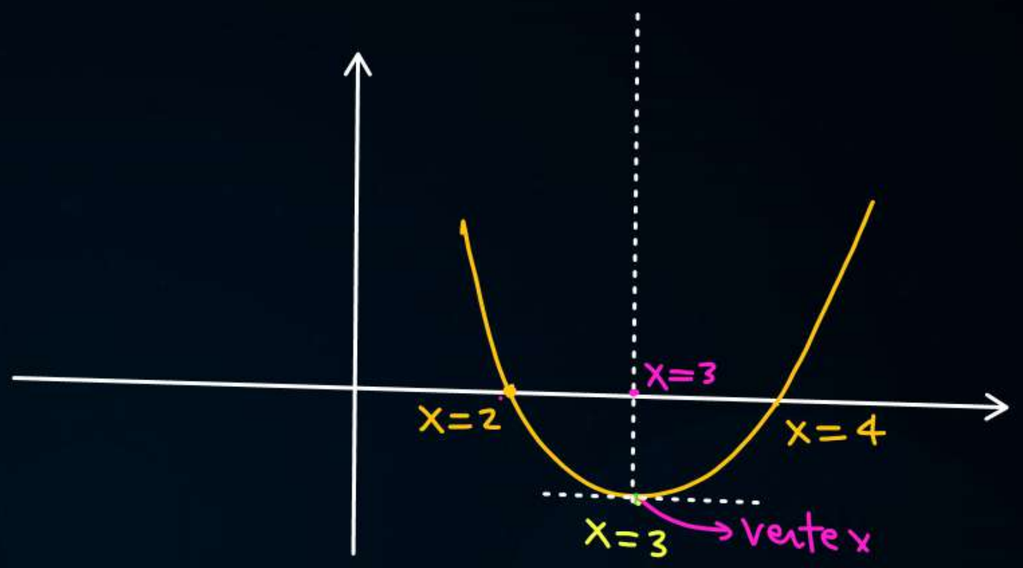
* Parabola cuts Y-Axis at 'c'.

(2)

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

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

$x = 2, \quad x = 4$



Slope $= 0$

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

$2x - 6 = 0$

$\boxed{x = 3}$

(3)

Draw

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

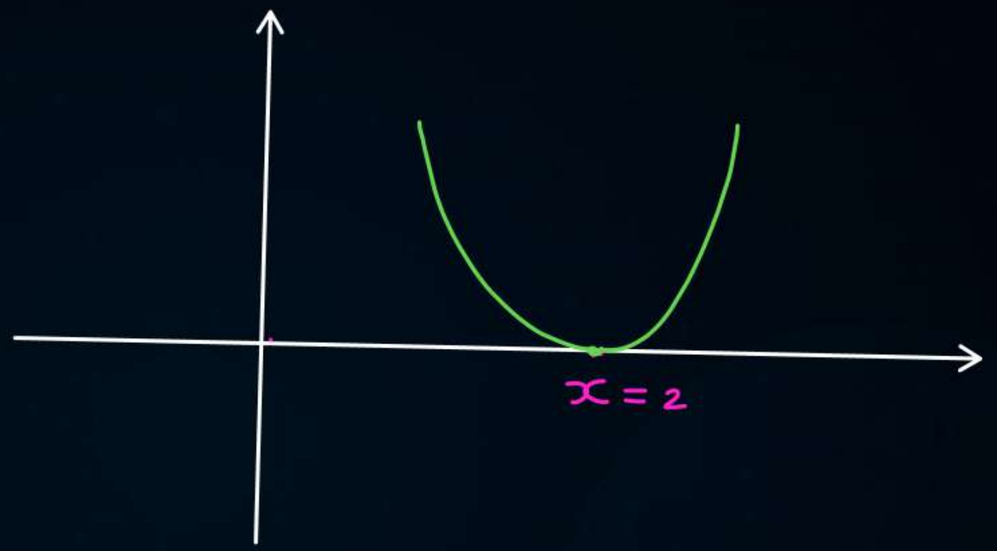
$y = 0, \Rightarrow (x-2)(x-2) = 0$

$x = 2$

$b^2 - 4ac = 0$

$b^2 = 4ac$

$x_1 = x_2 = 2$



(4)

Q $y = -x^2 + 4x - 3$

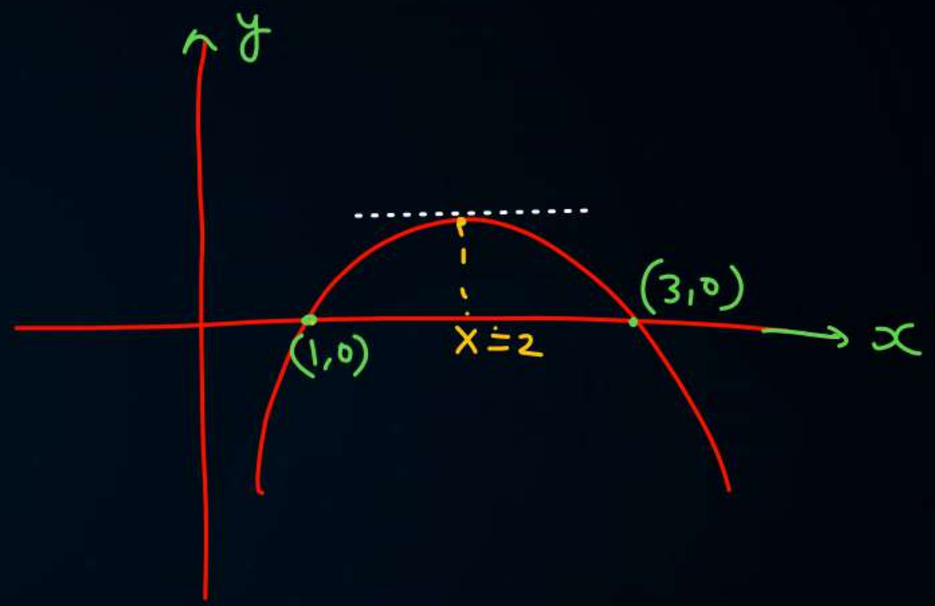
$b^2 - 4ac \equiv 16 - 4 \times (-1)(-3) = 4$

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

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

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

$x = 1, \; x = 3$



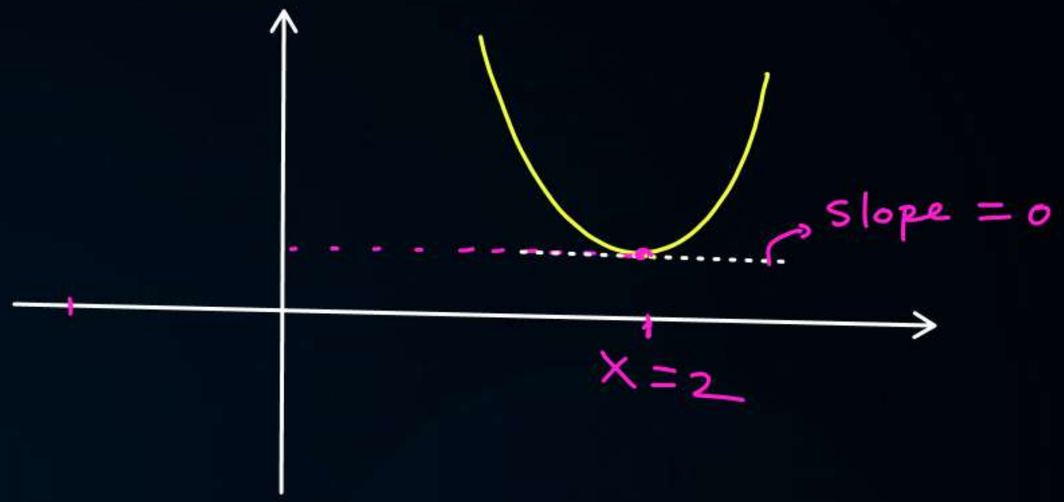
(5)

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

$b^2 - 4ac = (-4)^2 - 4 \times 1 \times 50$

$= -184$

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



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

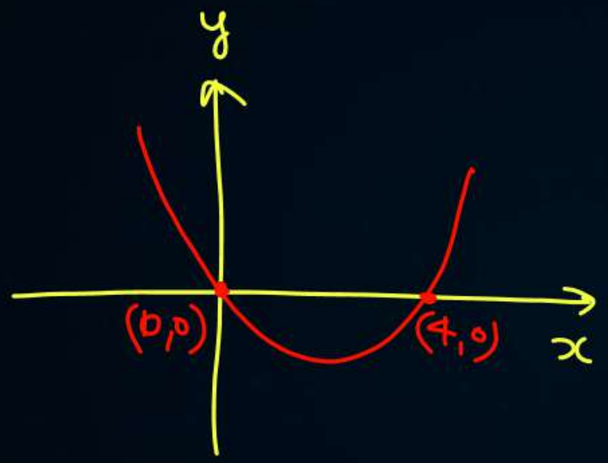
$x = 2$

(6) Draw.

Q $y = x^2 - 4x$

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

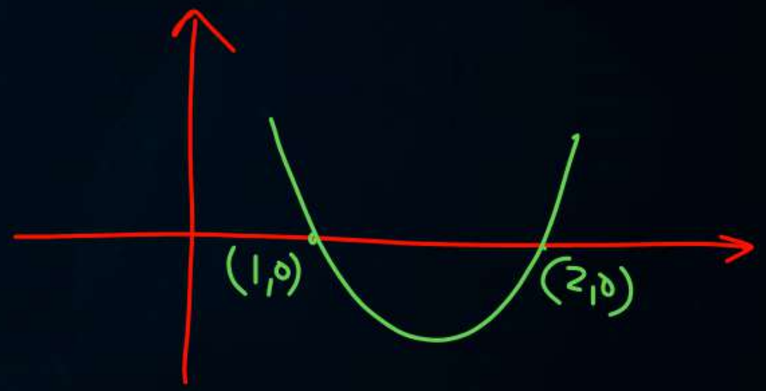
$x = 0, \; x = 4$



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

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

$x = 1, 2$



(7)

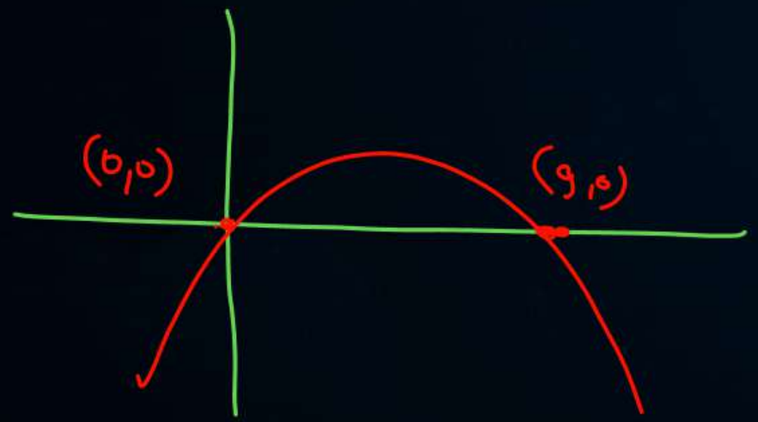
Q $y = -x^2 + 9x$

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

$x^2 - 9x = 0$

$x(x-9) = 0$

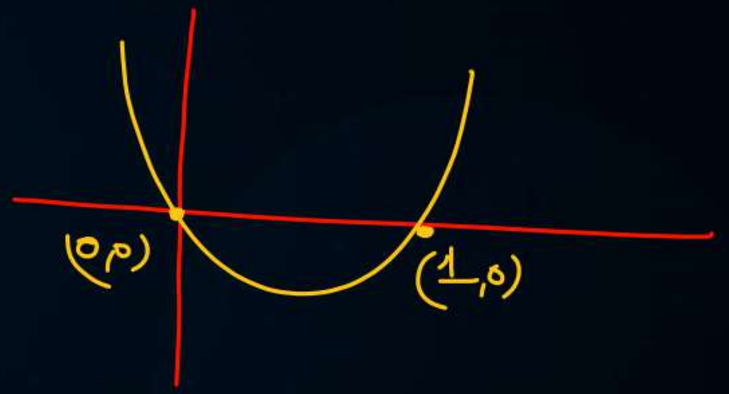
$x = 0, \quad x = 9$



Q $y = x^2 - x$

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

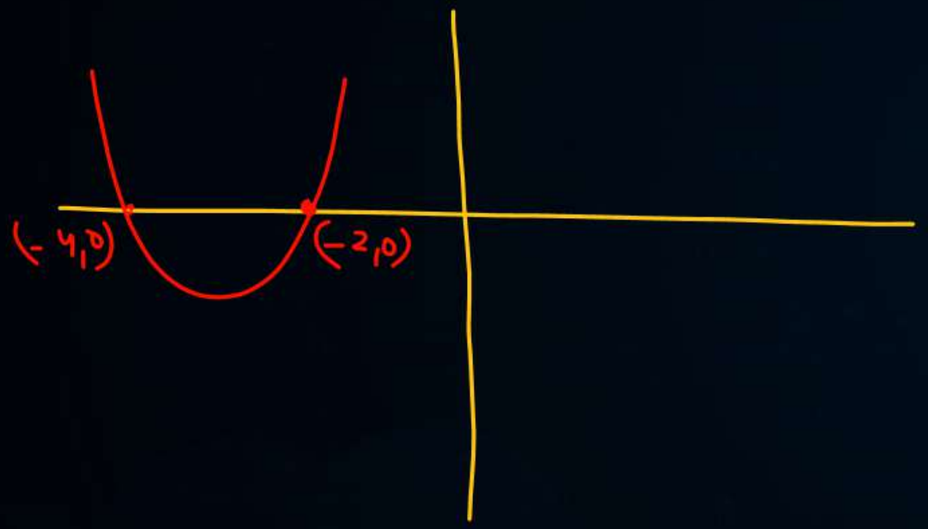
$x = 0, \quad x = 1$



(8) $y = x^2 + 6x + 8$

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

$x = -2, \quad x = -4$



(9) $y = x^2 + 2x + 10$

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

$= 4 - 40 = -36.$

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

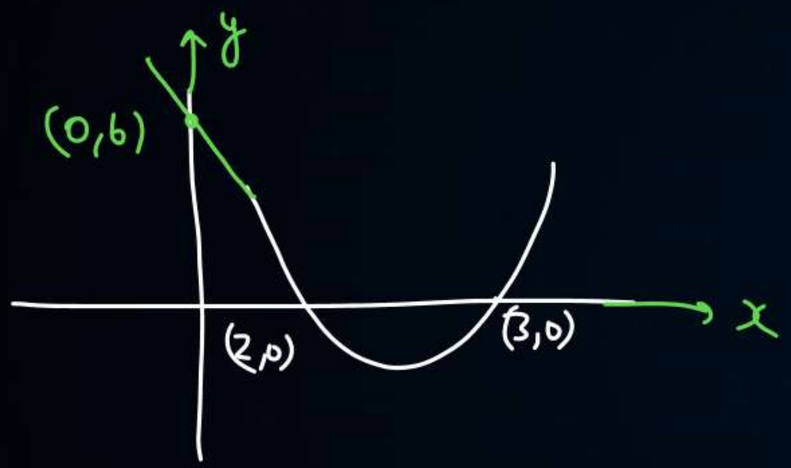
$\frac{dy}{dx} = 2x + 2 = 0$

$x = -1$

(9) Q $y = x^2 - 5x + 6$

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

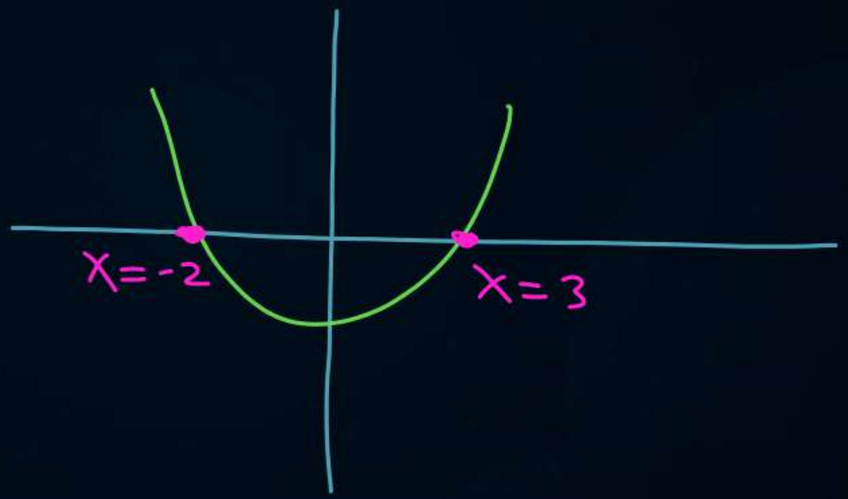
$x = 3, \quad x = 2$



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

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

$x = 3, -2$



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

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

Sol^n

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

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

$$k^2 - 36 = 0$$

$$k^2 = 36$$

$$k = \pm 6$$

THANK YOU