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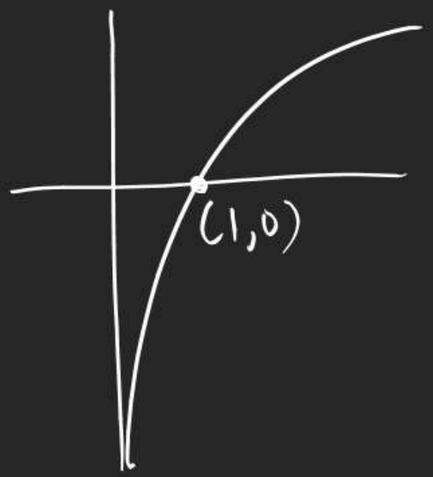
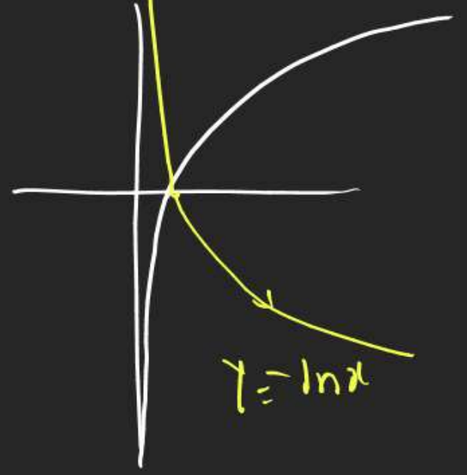
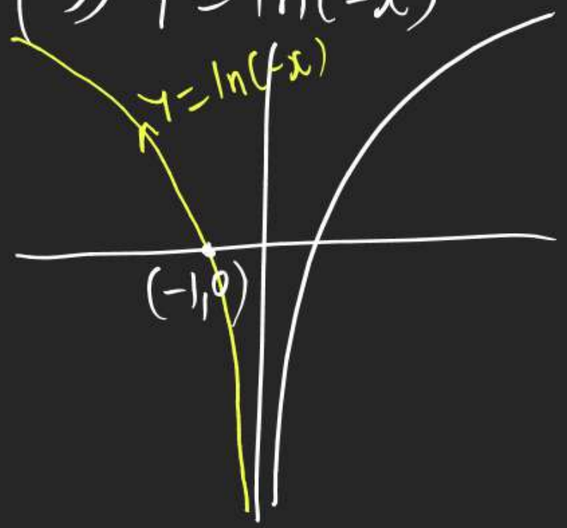
① $y = \ln x$



② $y = -\ln x$



(3) $y = \ln(-x)$



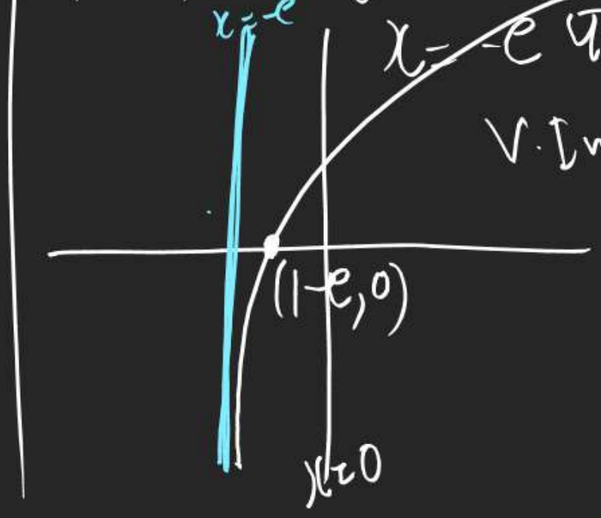
(4) $y = \ln(x+e)$

$f(x)+K$

$f(x+K)$

$x = -e$ OR $y = \ln x$

V. Imp



× Speed

Accuracy

Time Spent

School :-

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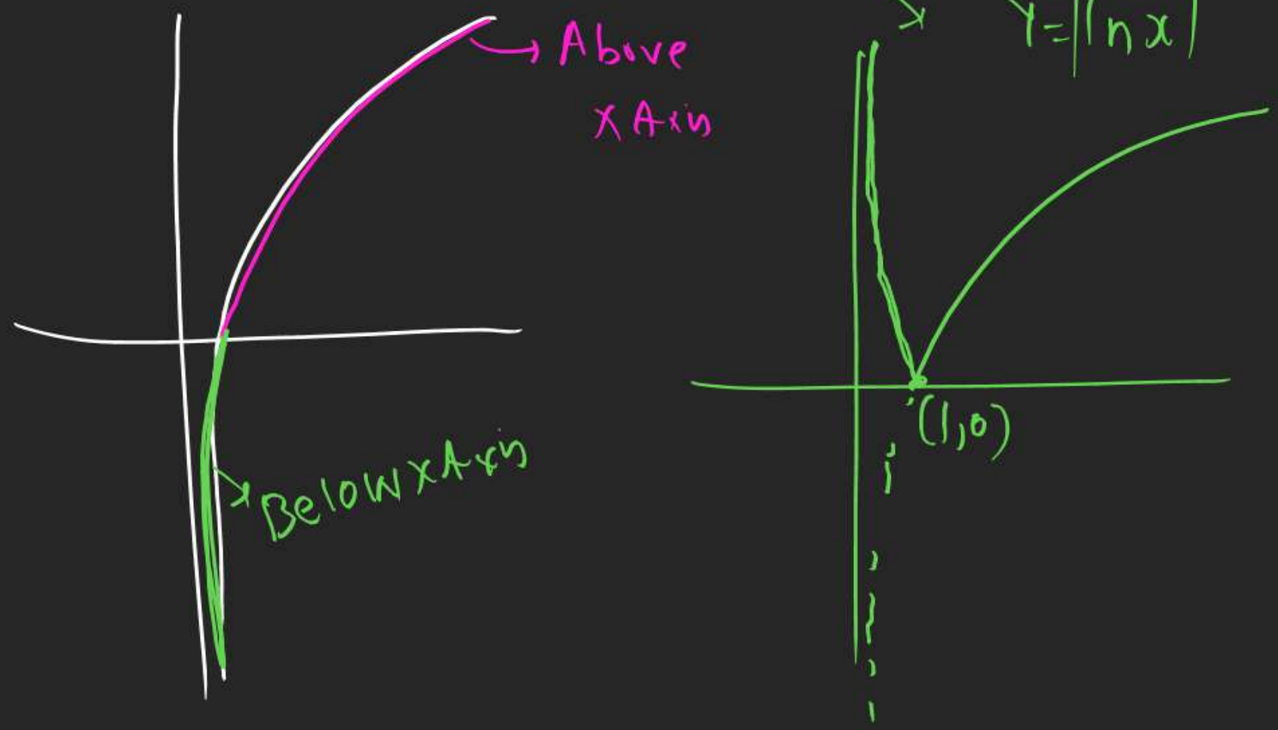
$$Y = |f(x)| = \begin{cases} f(x) & f(x) \geq 0 \\ -f(x) & f(x) < 0 \end{cases}$$

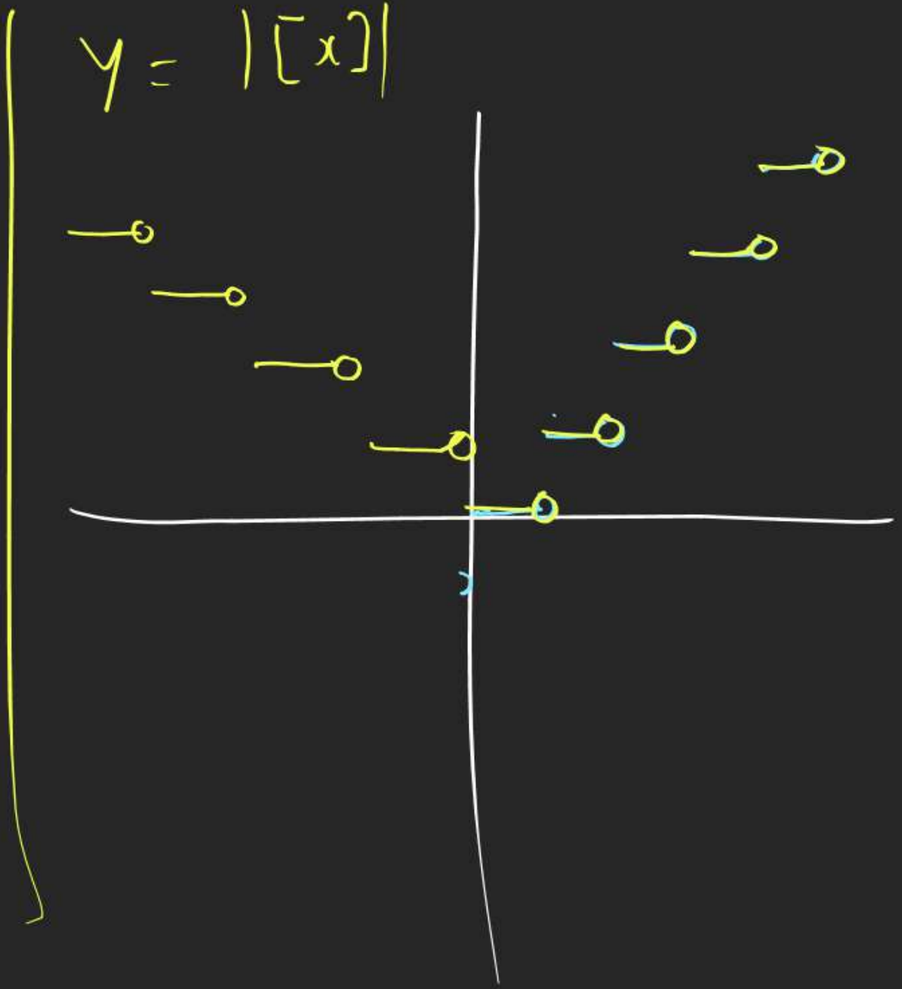
$f(x) \geq 0$ → Jha fxn y Axis k above hai

$f(x) < 0$ → fxn y Axis K Below.

$Y = |\ln x|$



$Y = |[x]|$



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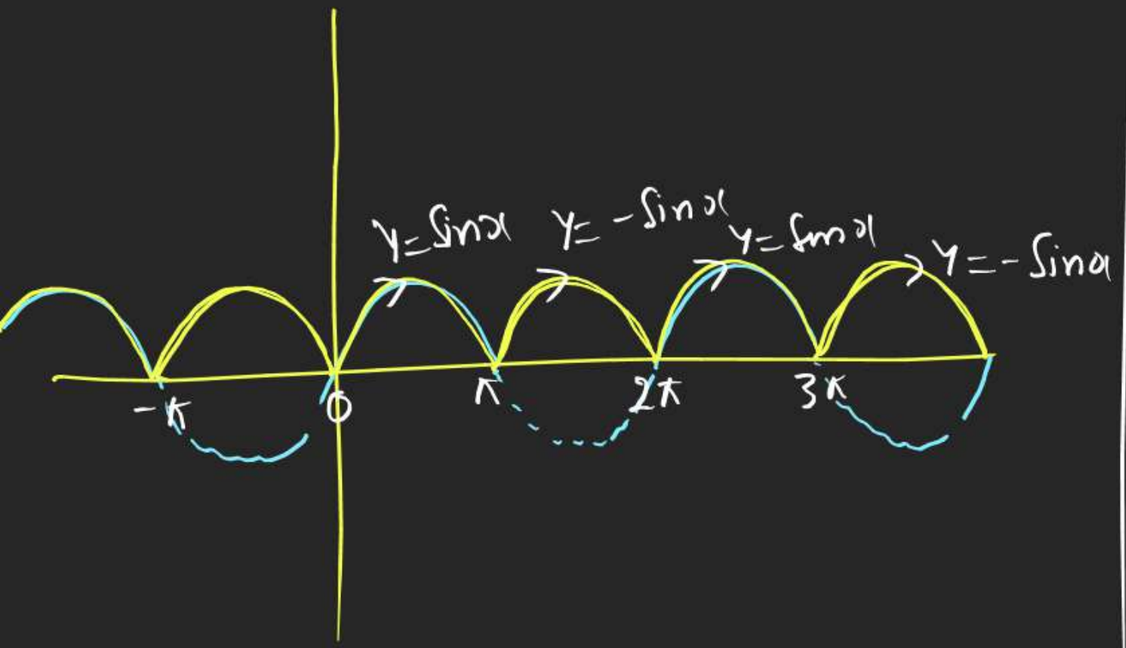
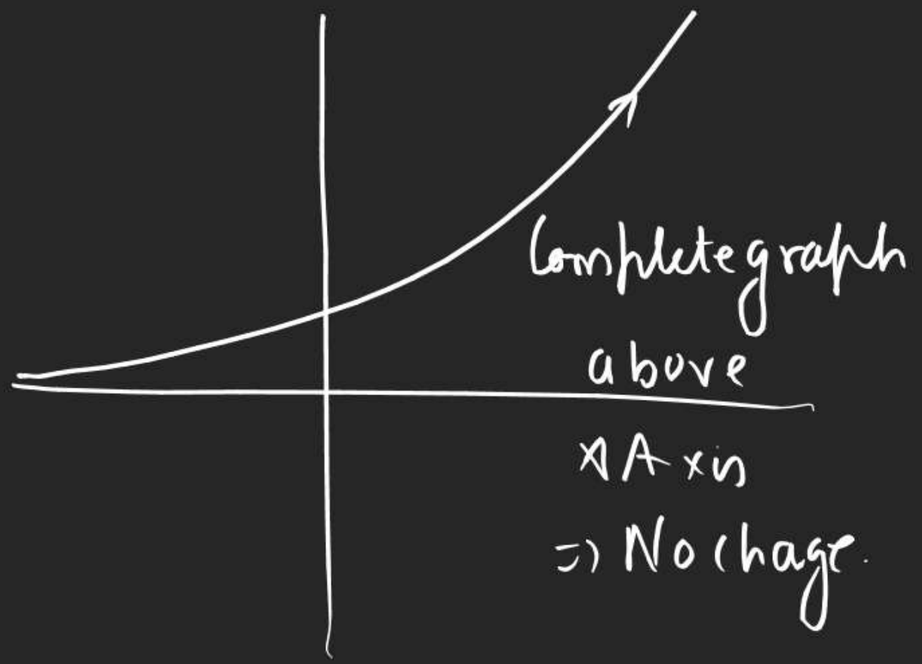
$y = |\sin x|$



$y = |e^x|$



$\Rightarrow$ No change.

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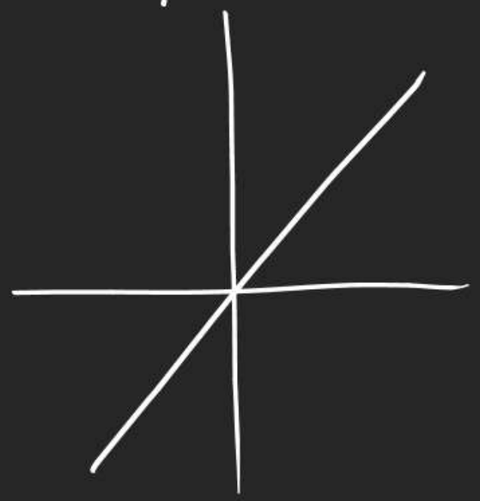
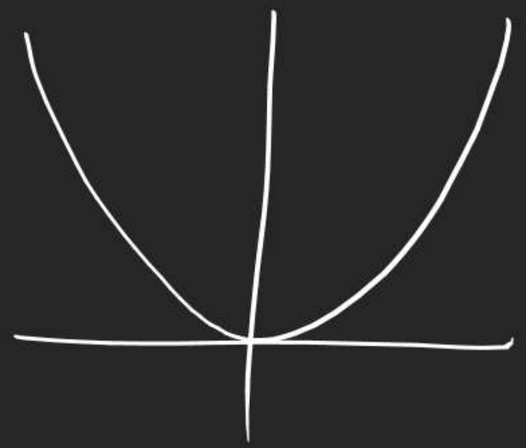
9 Basic graphs

(1) $y = x$

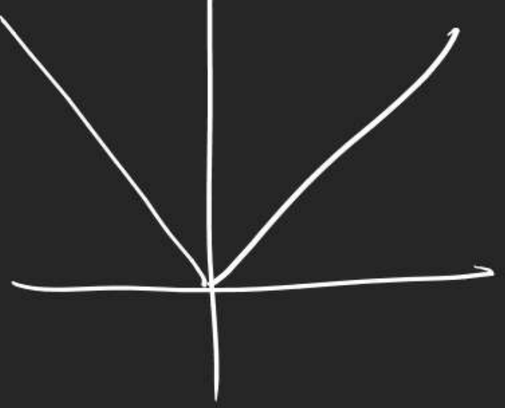


(2) $y = -x$

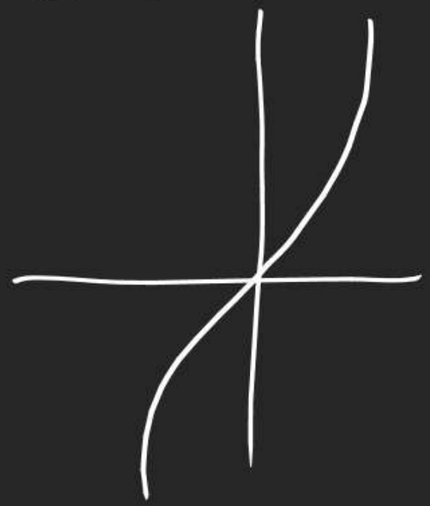
(3) $y = x^2$



(4) $y = |x|$

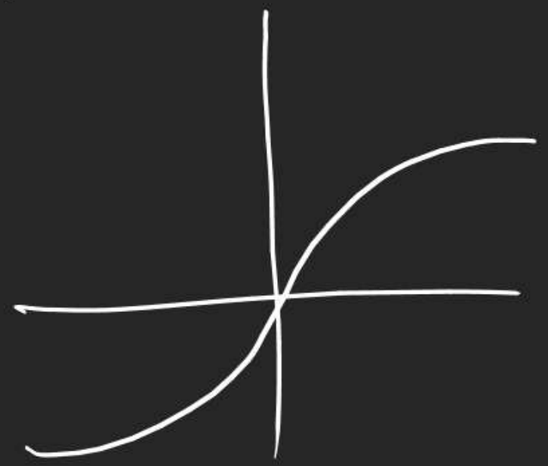


(5) $y = x^3$

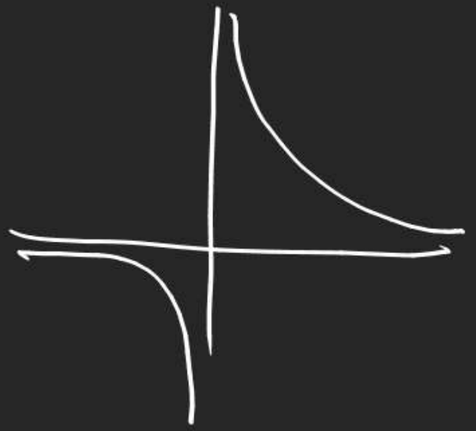


(6) $y = \sqrt{x}$

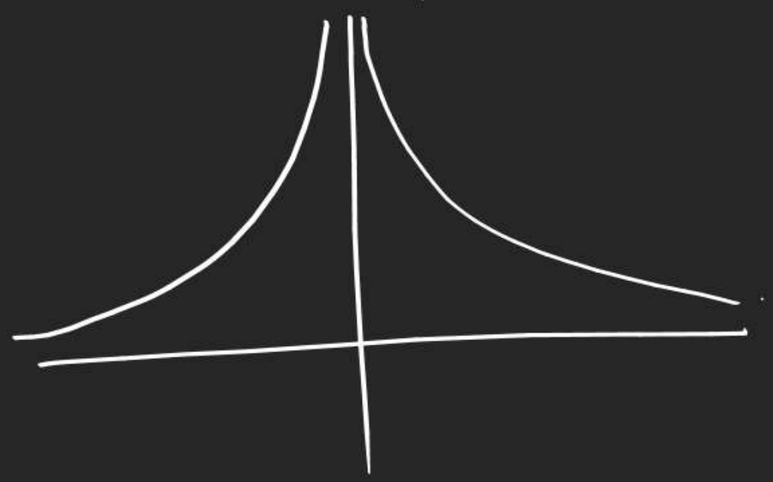
(7) $y = x^{1/3}$

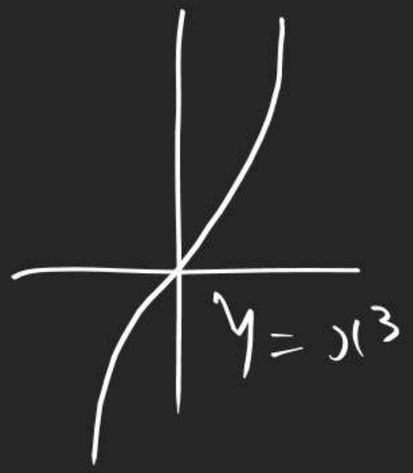


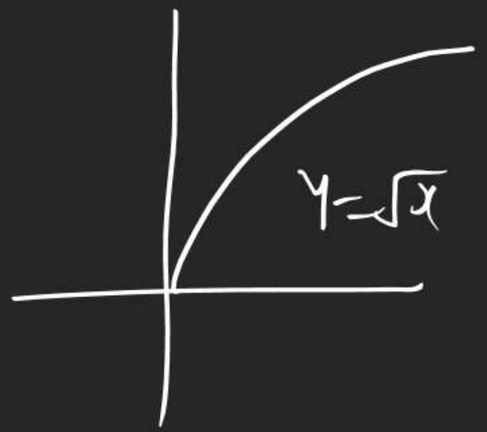
(8) $y = \frac{1}{x}$

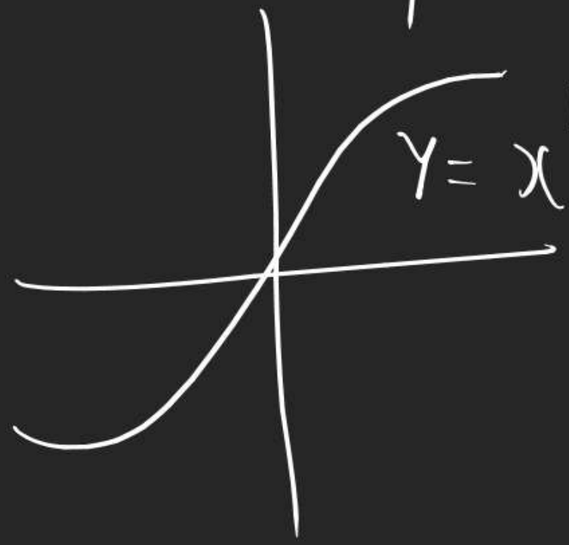


(9) $y = \frac{1}{|x|}$









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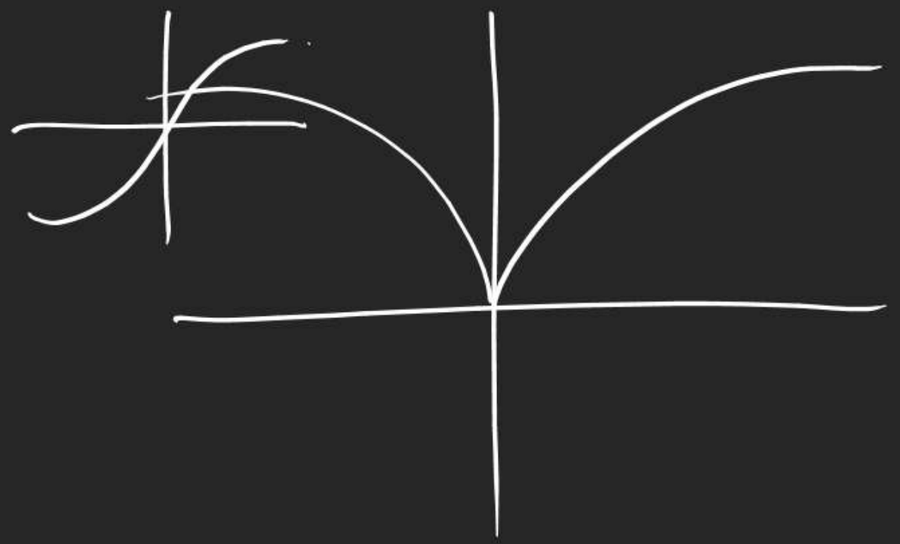
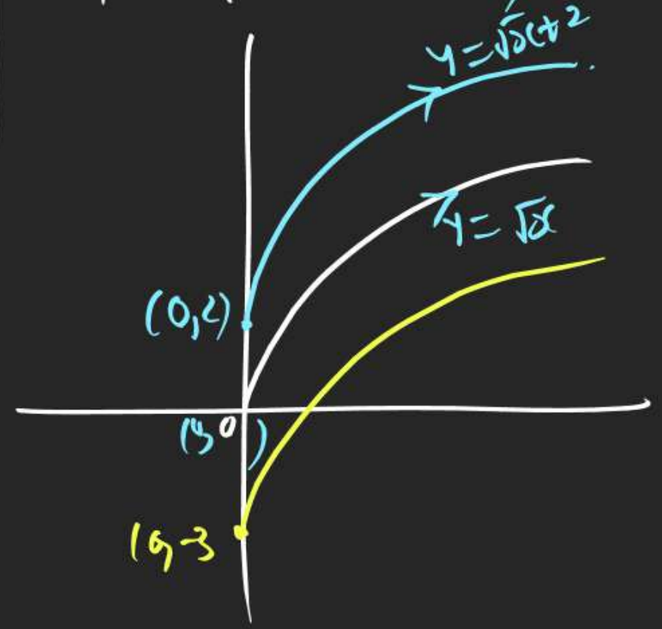
Q $y = |x^{1/3}|$

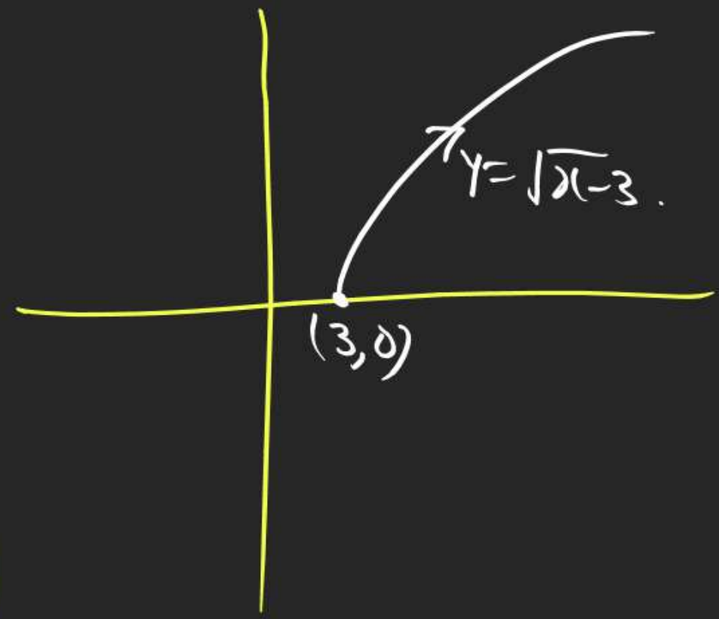


$y = \sqrt{x} + 2$ / $y = \sqrt{x} - 3$



$y = \sqrt{x-3}$ $f(x+K)$

$x = 3\sqrt{x}$ $y = \sqrt{x}$



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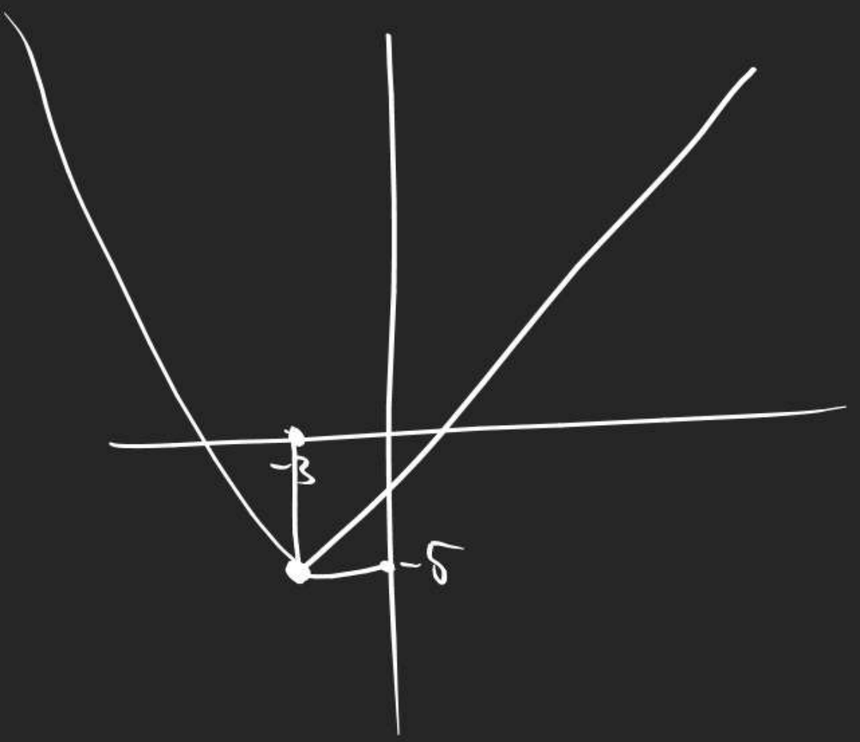
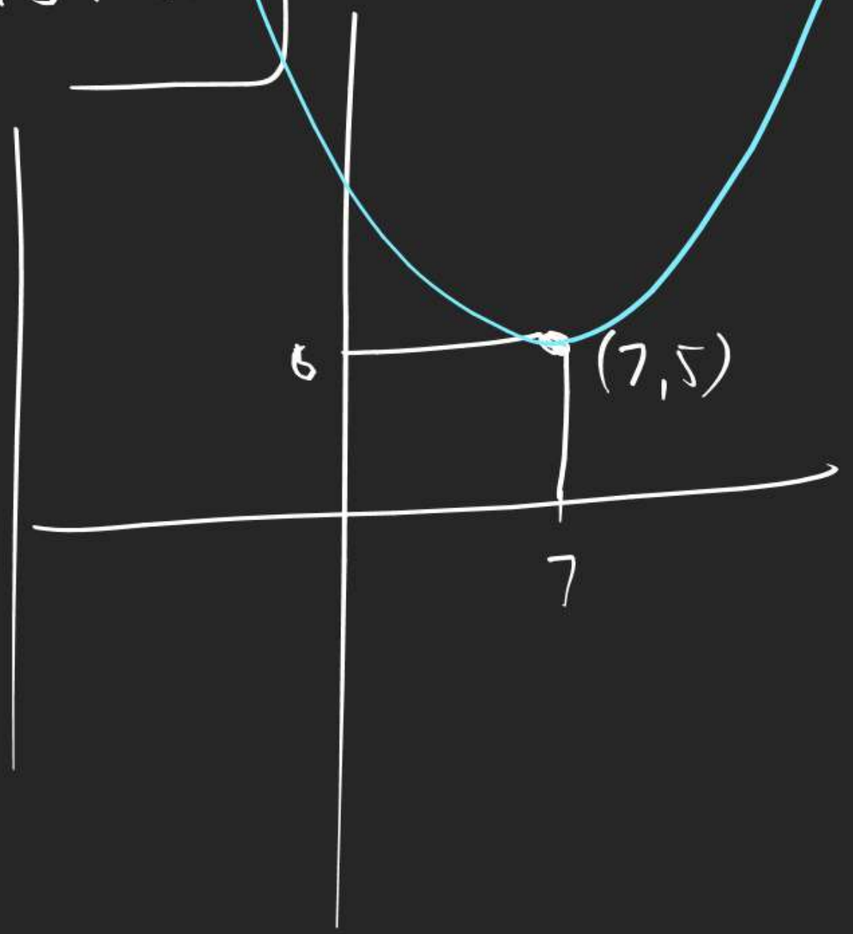
$y = |x+3| - 5$

$x = -3$ ya $|x|$, then Niche



Q $y = (x-7)^2 + 5$

$x = 7$ ya x^2, 5 upr



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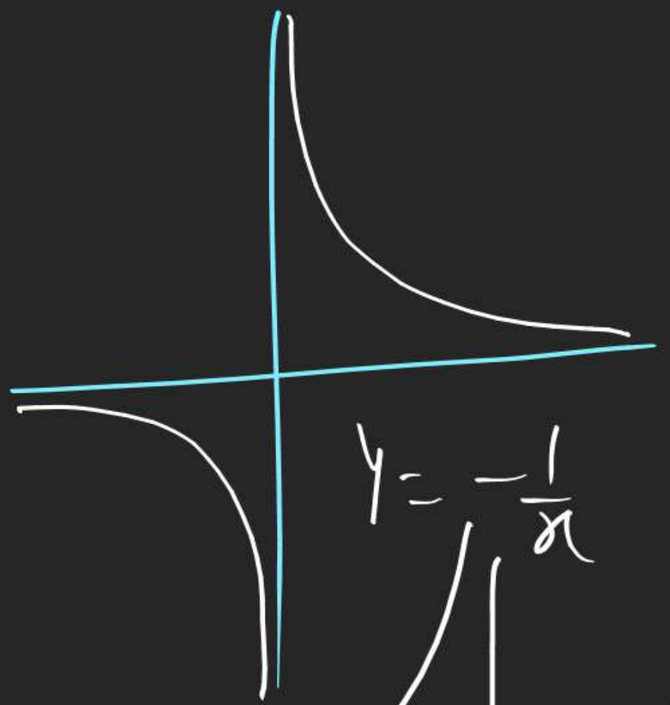
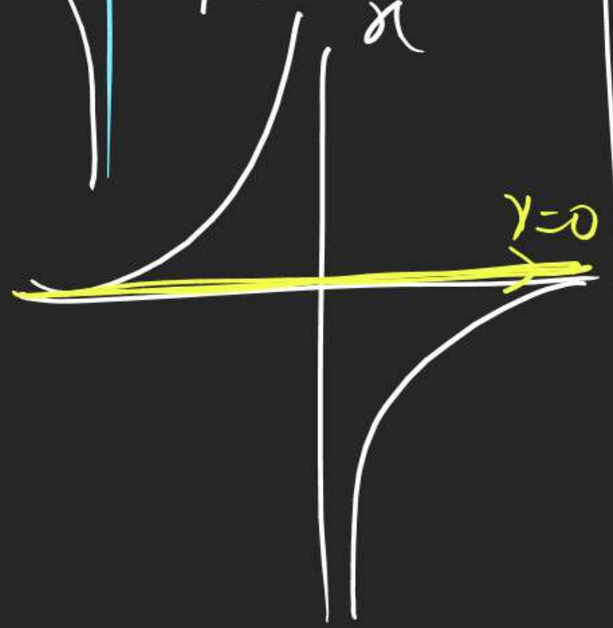
$y = \frac{1}{x}$

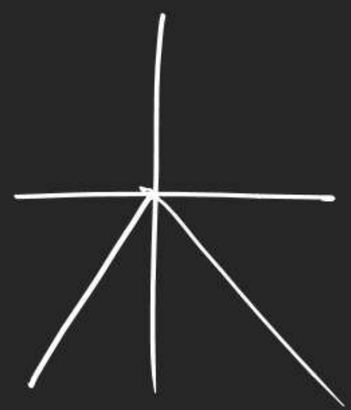


$y = -\frac{1}{x}$

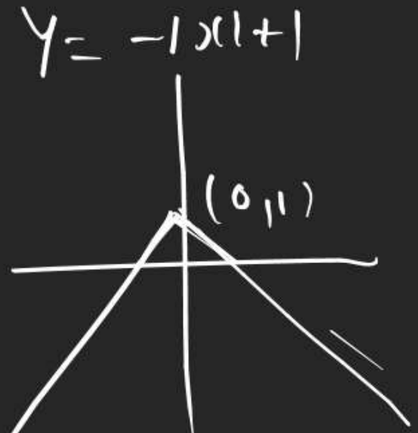


$y = 1 - |x| = -|x| + 1$

① $y = -|x|$ then ② ⊥ ulo.



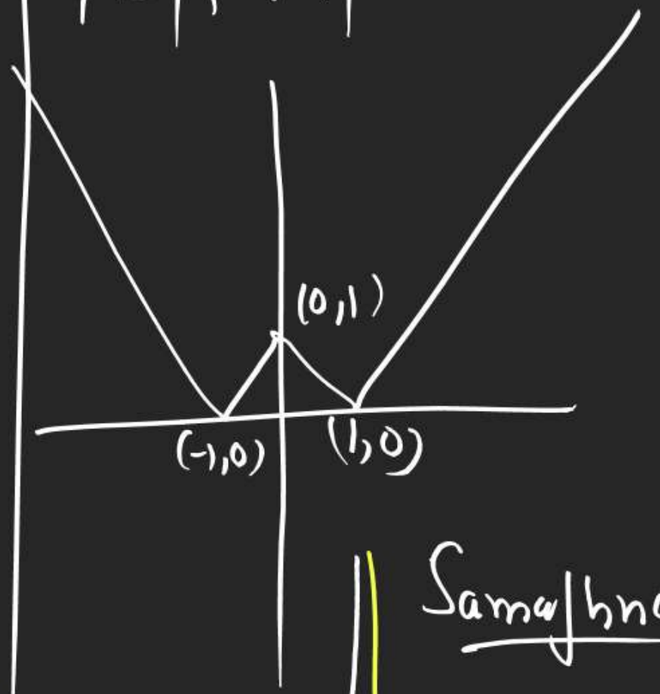
$y = -|x| + 1$



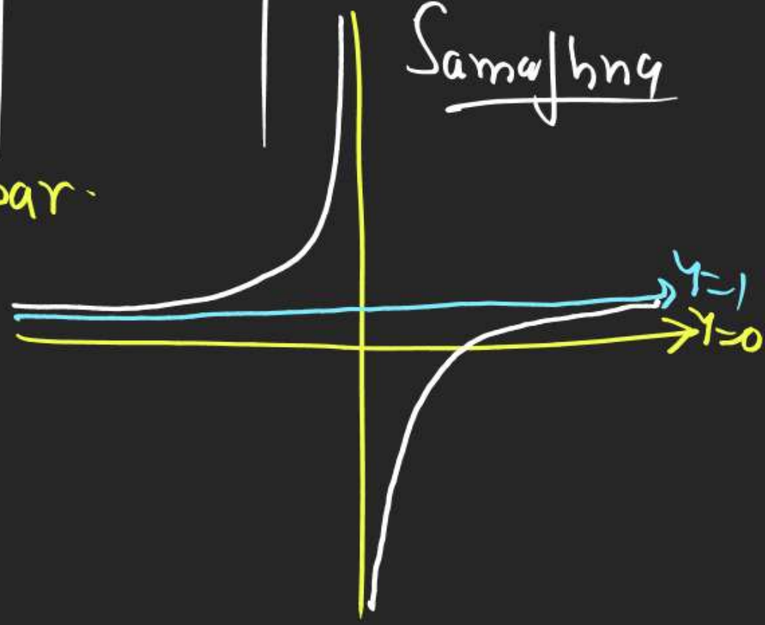
$y = \frac{1}{1 - \frac{1}{x}}$ ⊥ ular.

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

$y = ||-|x||$



Samajhna



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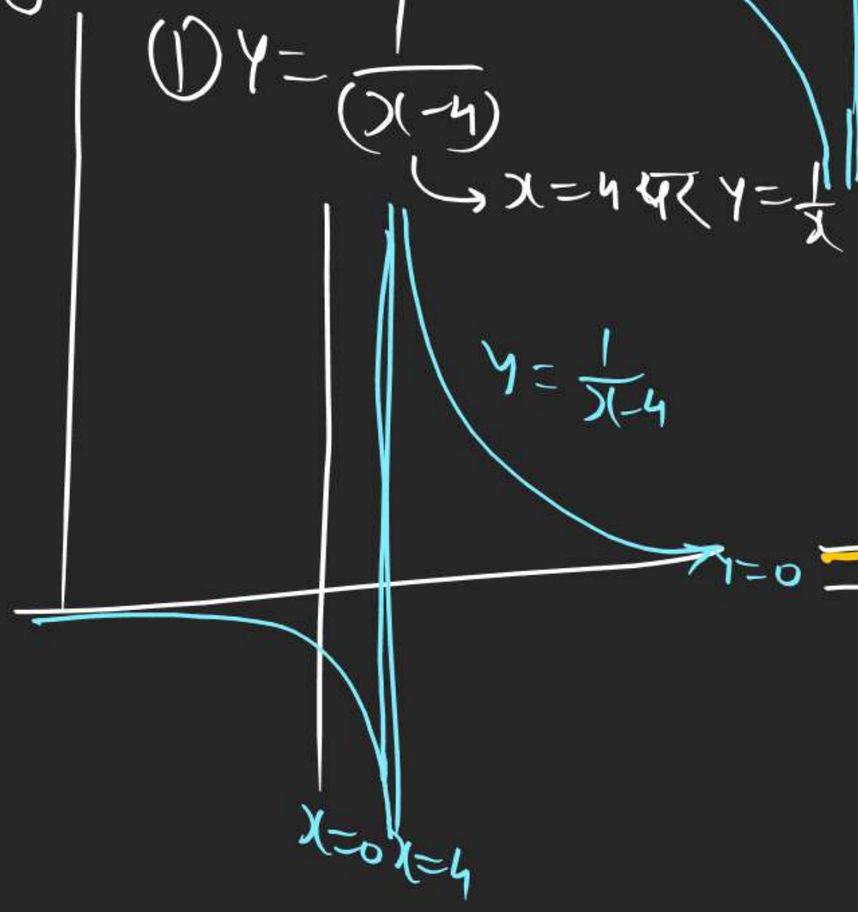
Q $y = \frac{x+3}{x-4}$ Kagraph?

$= \frac{(x-4)+7}{(x-4)}$

$= 1 + \frac{7}{(x-4)}$

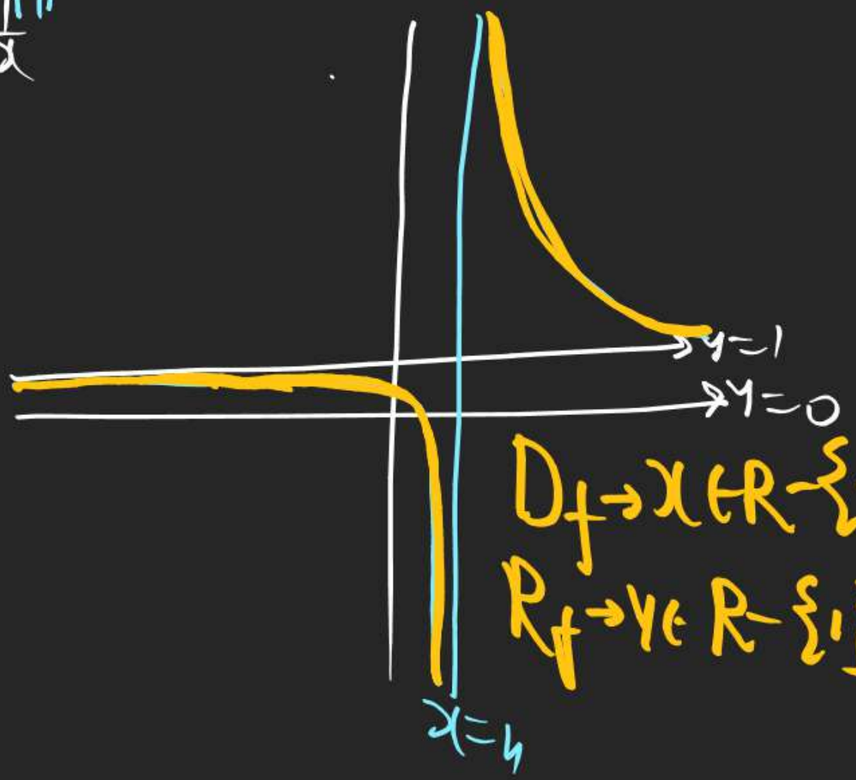
(1) $y = \frac{1}{(x-4)}$

↳ $x=4$ & $y=\frac{1}{x}$



(2) $y = \frac{7}{x-4}$

(3)



$D_f \rightarrow x \in R - \{4\}$

$R_f \rightarrow y \in R - \{1\}$

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8) $y = f(|x|) = \begin{cases} f(x) & x \geq 0 \\ f(-x) & x < 0 \end{cases}$

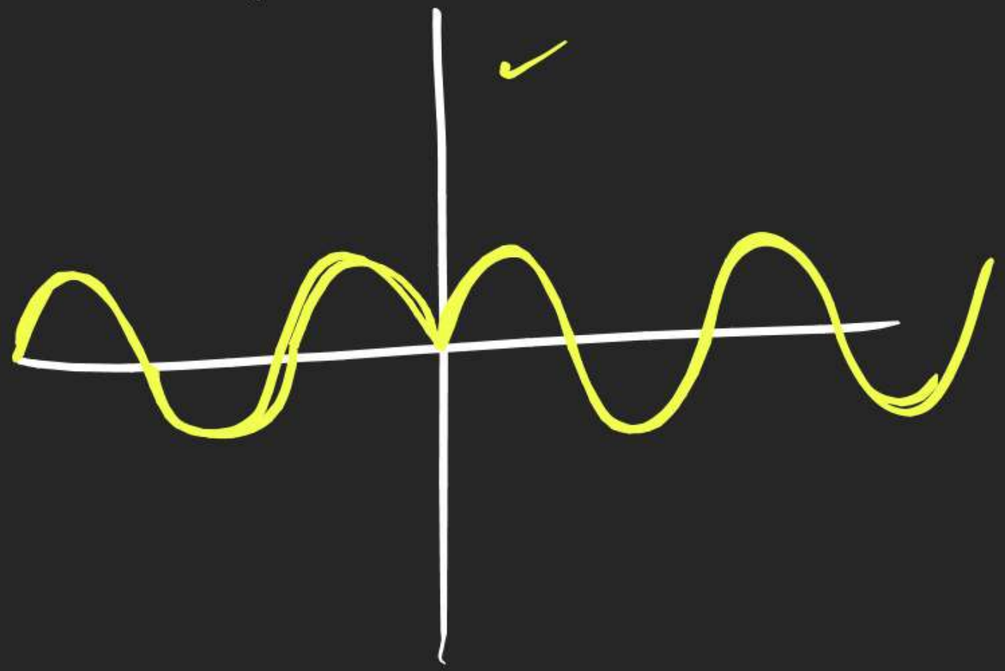
$x \geq 0$

$x < 0$ $x<0$ | $x \geq 0$

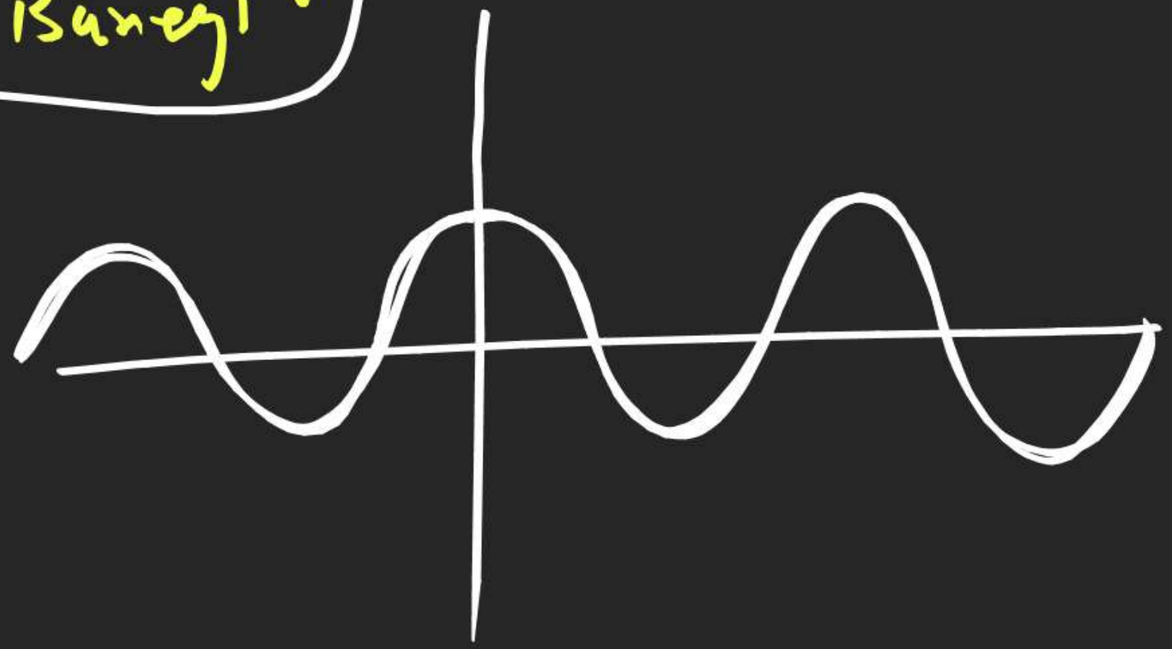
RHS Pr fxn as it is Banegu.

Left side ki fxn ki Image Banegi

$y = \sin|x|$



$y = \cos|x| = \cos x$



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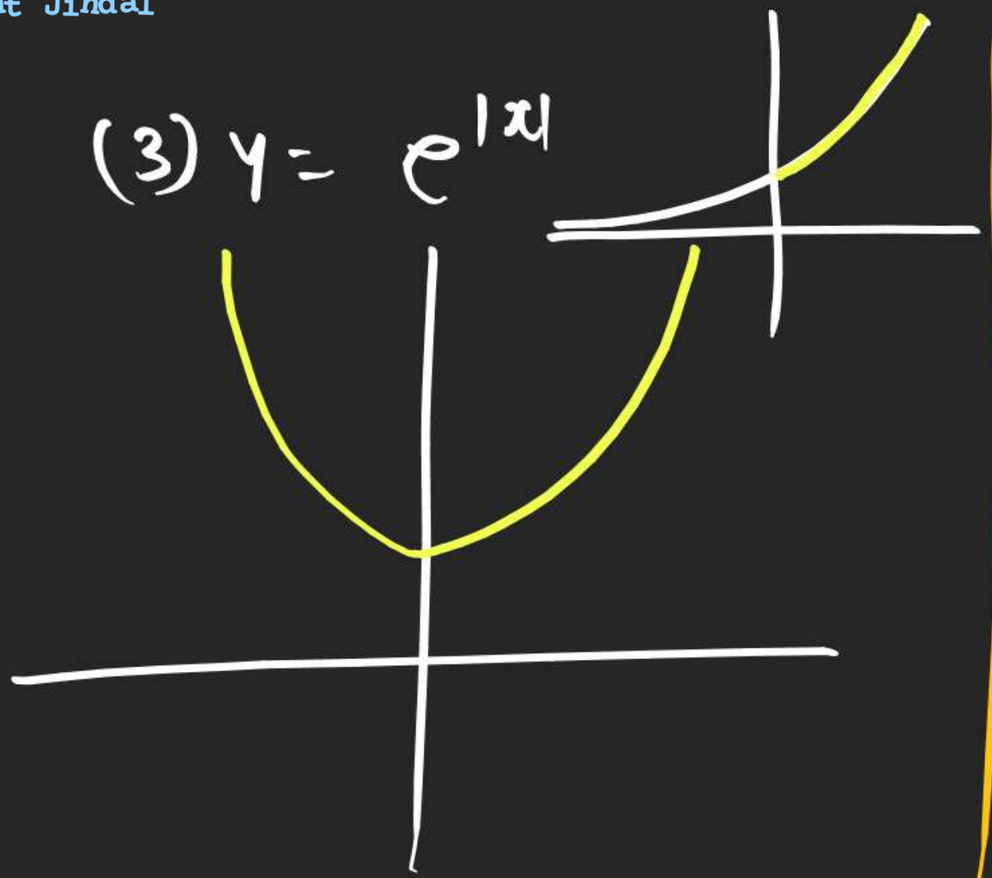
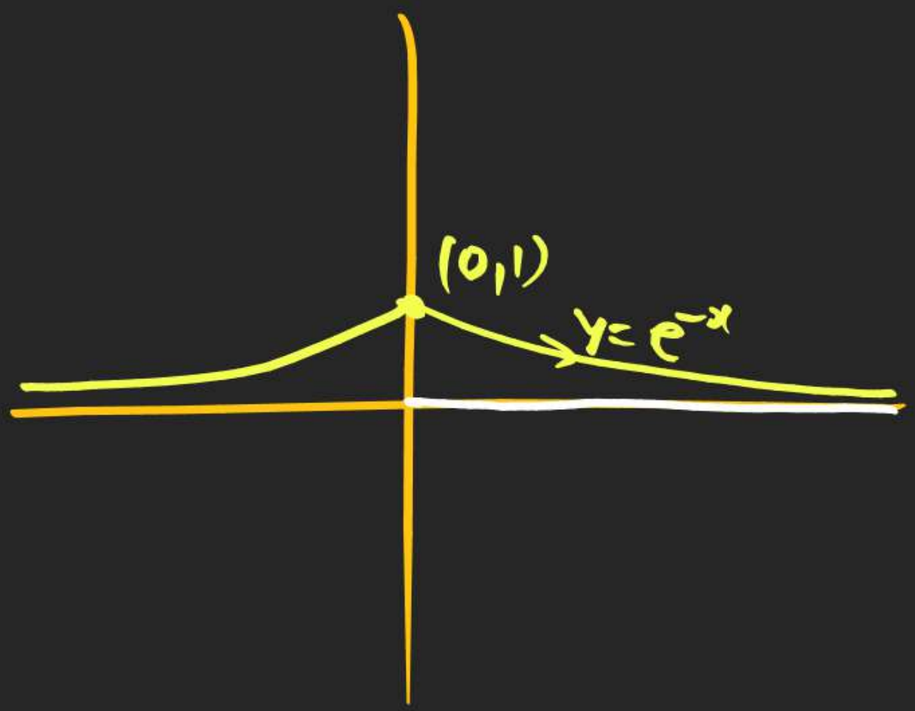
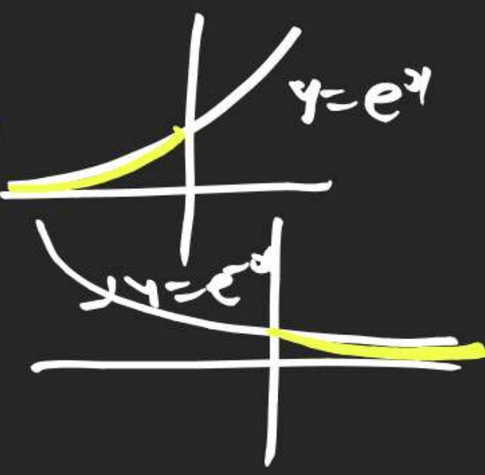
(3) $y = e^{|x|}$

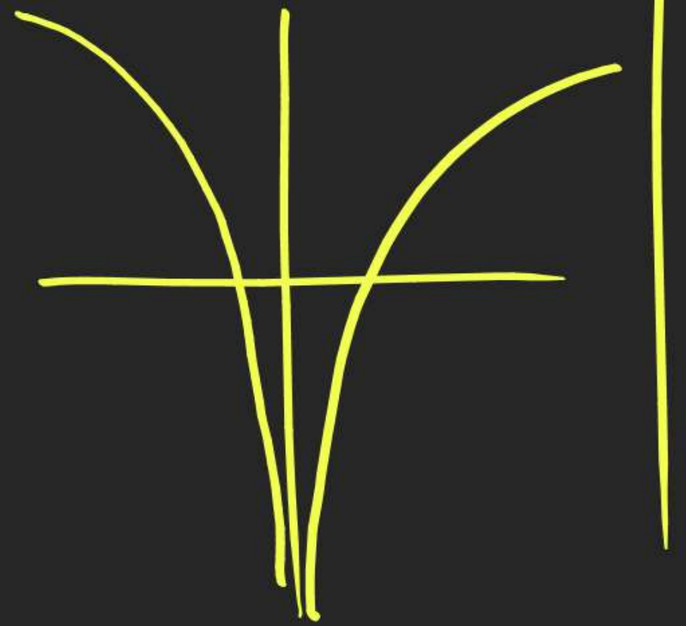


$y = e^{-|x|} = \begin{cases} e^{-x} & x \geq 0 \\ e^{+(+x)} & x < 0 \end{cases}$





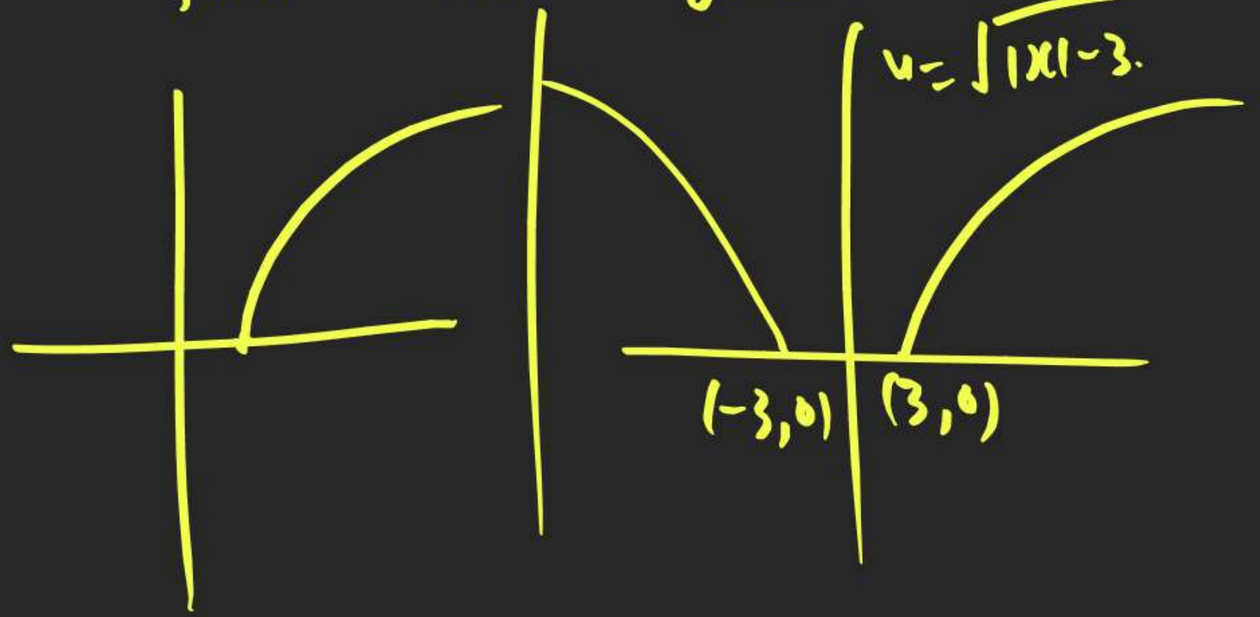
Q $y = \ln|x|$



$y = \sqrt{|x|-3}$

① $y = \sqrt{x-3}$ $\longrightarrow$ ② $y = \sqrt{|x|-3}$

$f(x) \rightarrow x = 3$ $\sqrt{x}$ $f(|x|)$



$y = |x|^2 - 2|x| + 3$ → $\frac{dy}{dx} = 2x - 2 = 0$

$x = 1$

$y = 1^2 - 2\times1 + 3 = 2$

① $y = x^2 - 2x + 3$

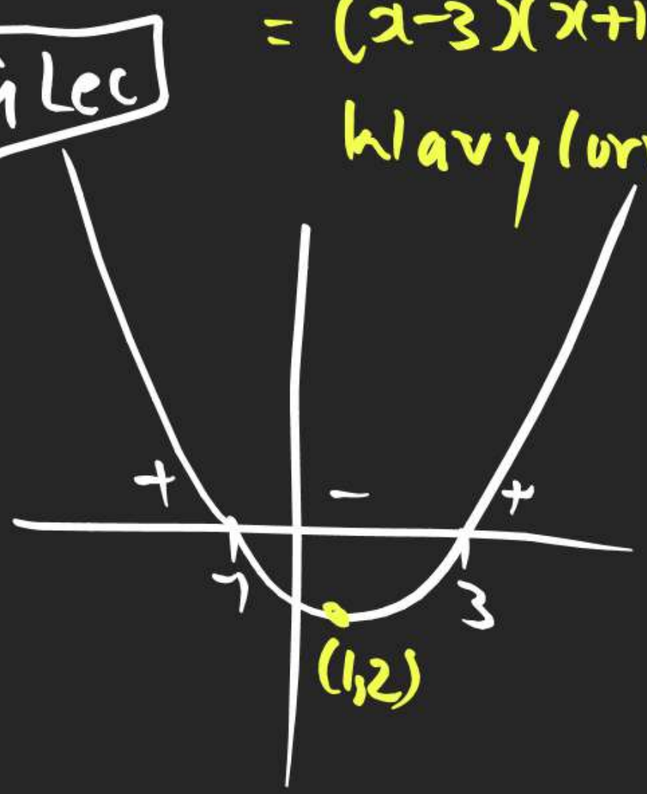
$= (x-3)(x+1)$

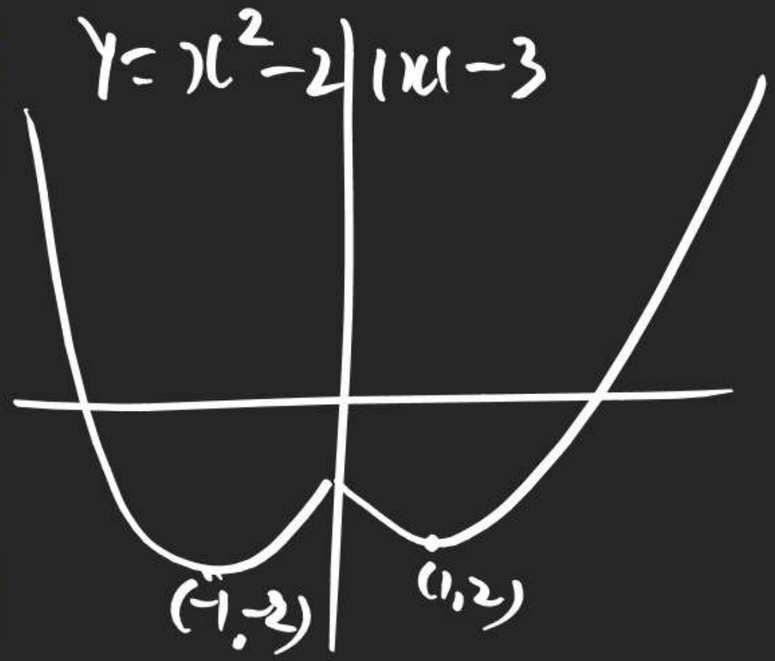
Wavy curve

② $y = |x|^2 - 2|x| + 3$

$y = x^2 - 2|x| - 3$

4 Lec





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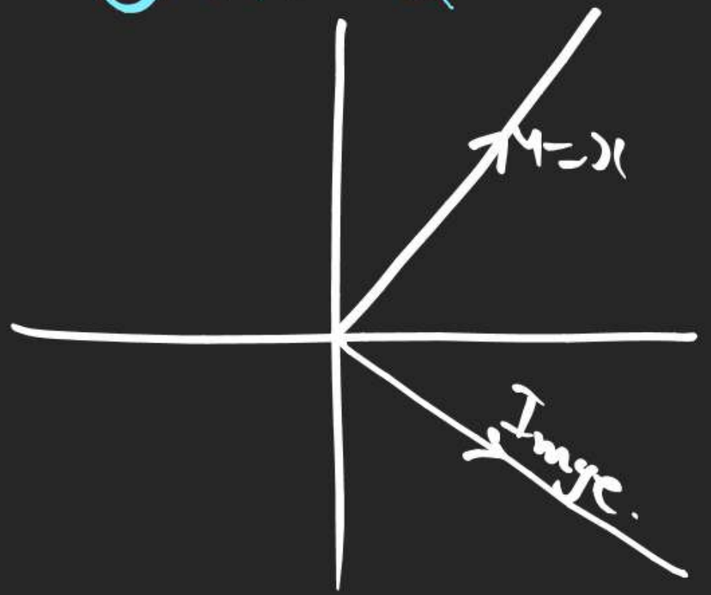
$|y| = f(x)$

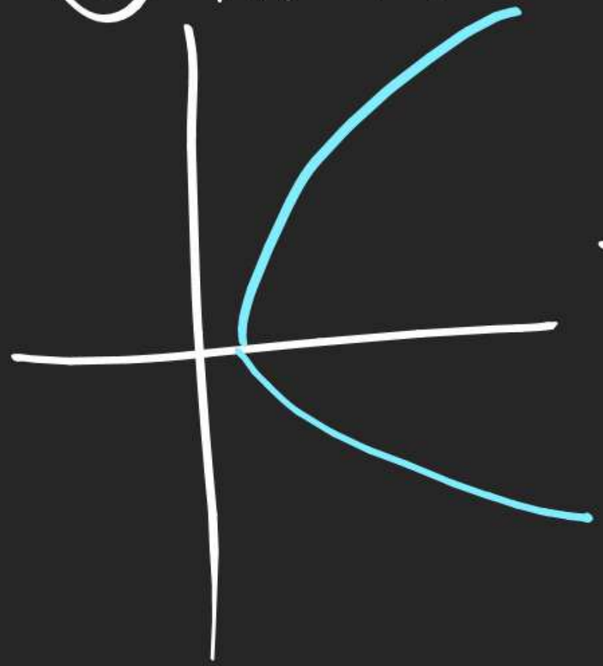
① Make graph Above X Axis only.

② Make Image of made graph in X Axis

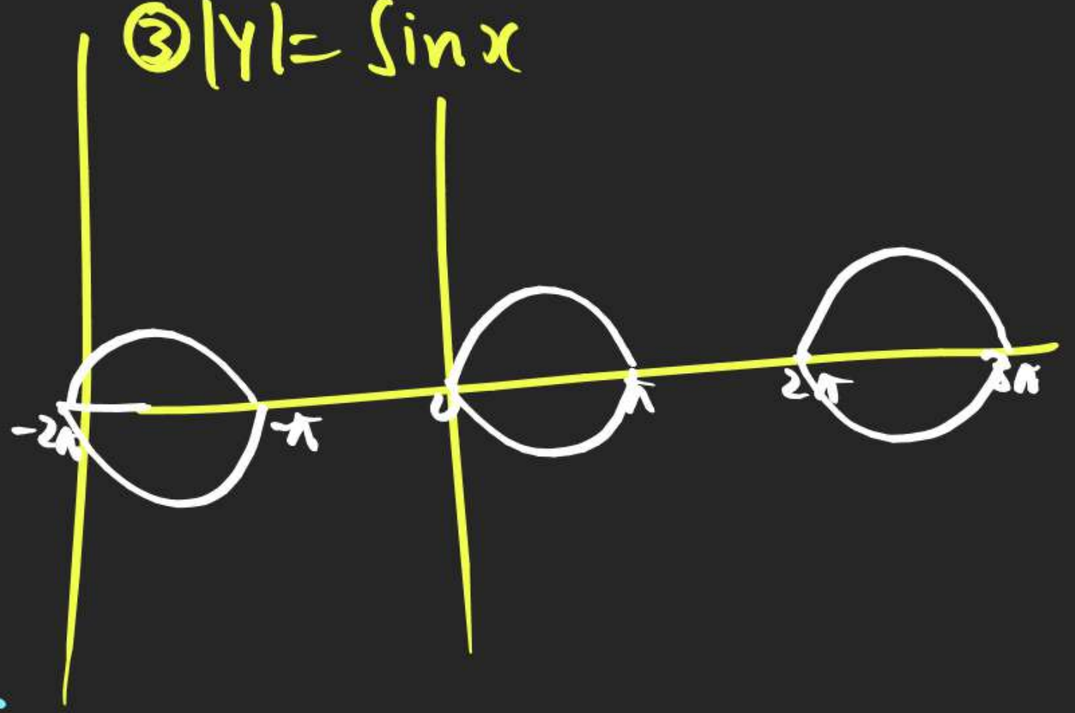
① $|y| = x$



② $|y| = \ln a$



③ $|y| = \sin x$



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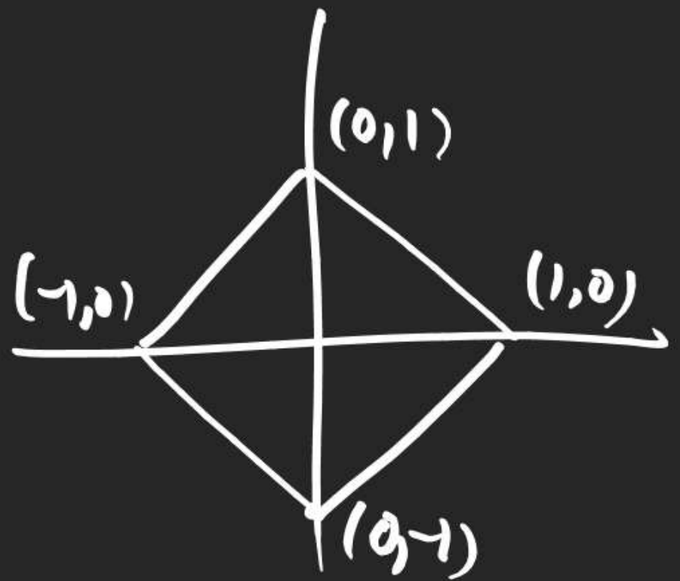
$y = |-|x|$

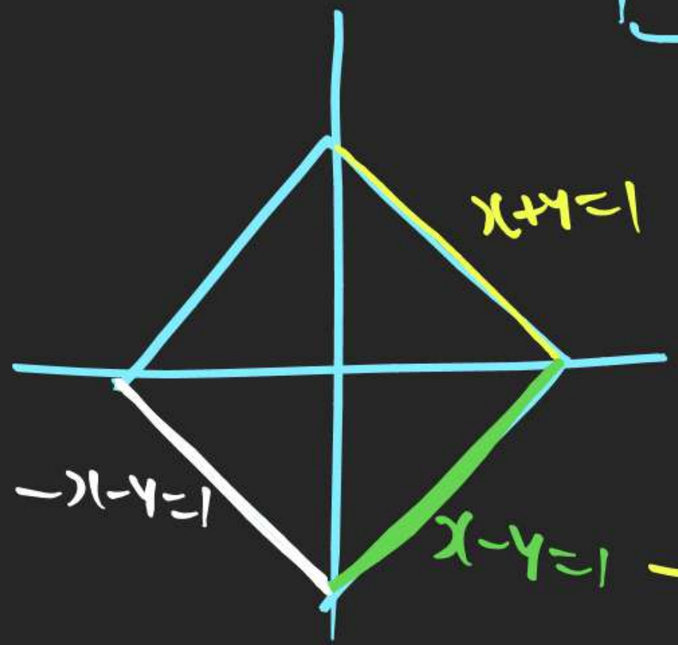
$|y| = |-|x|$



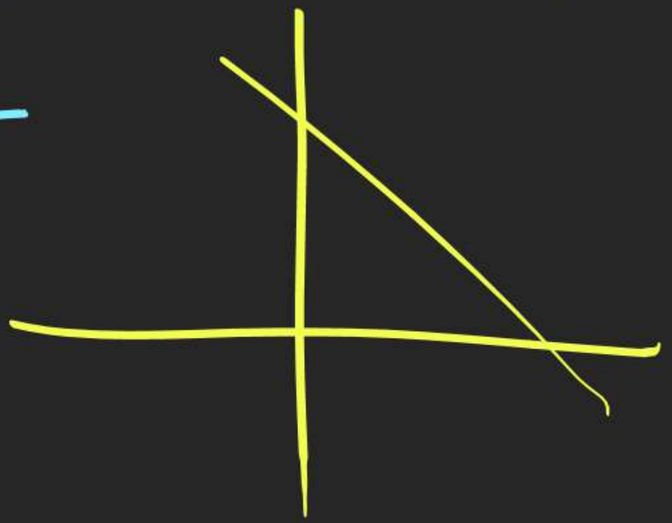
Q $|x|+|y|=1$

$|y| = |-|x|$

- $x+y=1$ (+ +)
- $x-y=1$ (+ −) ④
- $-x+y=1$
- $-x-y=1$ → (−,−) ③

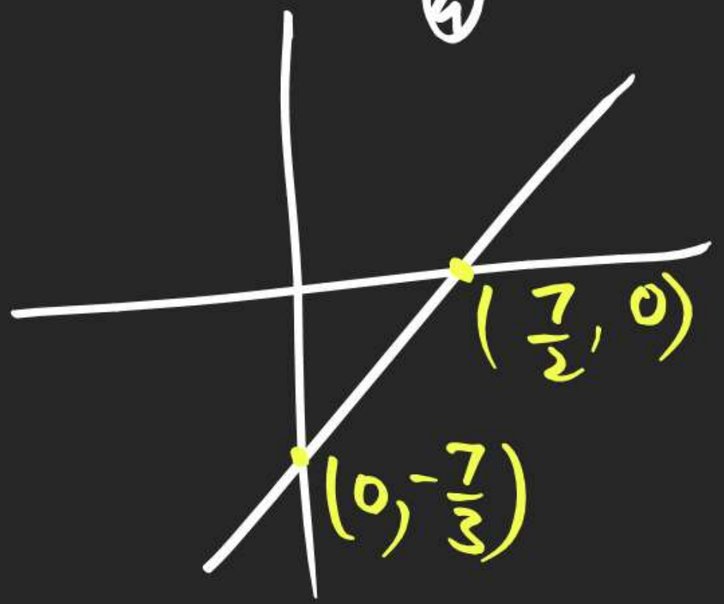


$2x+3y=1$



$2x-3y=7$

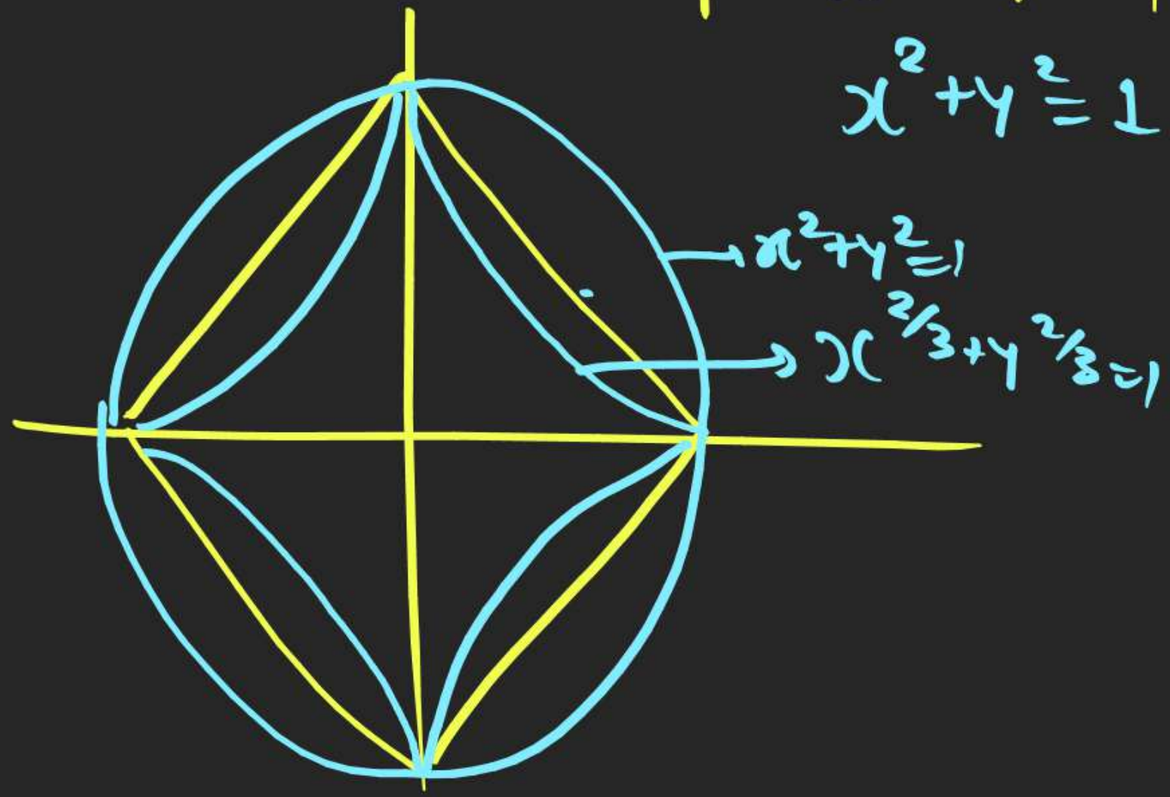
⊕ ⊖ (4)



$|x|+|y|=1$ — $\rightarrow x^1+y^1=1$

$x^{2/3}+y^{2/3}=1$ ← deg 1 से Km

$x^2+y^2=1$



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Domain

(concept)

$y = f(g(x))$

If Dom of $f = R$ then

Dom of $f(g(x))$ = Dom of $g(x)$

Q $y = \sin(\ln(x-3))$ find D_f

$D_f = R$

Dom of $\sin(\ln(x-3))$

= Dom of $\ln(x-3)$

$x - 3 > 0$

$x > 3$

$x \in (3, \infty)$

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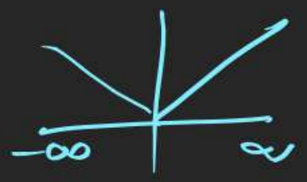
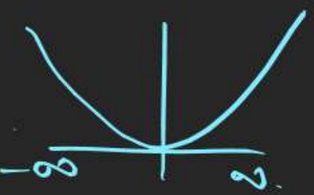
(1) $y = |x|$ Dom $= R$ 

(2) $y = (x)^2$ Dom. R 

(3) $y = x^2 - 2x + 3$ Dom $= R$
Poly

(4) $y = [x] \rightarrow x \in R$.

(5) $y = \{x\} \rightarrow x \in R$

(6) $y = e^x \rightarrow$  $\rightarrow R$.

7) $y = \ln x \rightarrow x > 0 \rightarrow x \in (0, \infty)$

8) $y = \sin x \rightarrow x \in R$.

Q $y = [|\sin \ln(x-3)|]$ Dom?

R R R

$x - 3 > 0$

$x > 3 \Rightarrow x \in (3, \infty)$

$\neq$

Q $y = e^{[|\{\sin(\ln(x-3)\}|]}$ Dom.

R R R R R R

$x - 3 > 0$

$x > 3$

$x \in (3, \infty)$

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Q Jee

$f(x) = [x] \cdot \sin\left(\frac{1}{[x+3]}\right)$ find D_f?

$x \in R$

$[x+3] \neq 0$

$[x] + 3 \neq 0$

$[x] \neq -3$

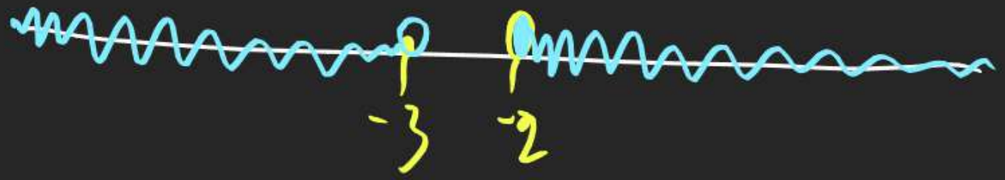
$x \notin [-3, -2)$

$[x] = -3$

Memo

$x \in [-3, -2)$

$x \in (-\infty, -3) \cup [-2, \infty)$



Q $y = \log_{2\{x\}-3}(x^2 - 5x + 13) + \frac{1}{\sqrt{\text{Sgn } x}}$

Dom.

$2\{x\} - 3 > 0$

$\{x\} > \frac{3}{2}$

$\{x\} \in [0, 1)$

Not Possi

$x \in \phi$

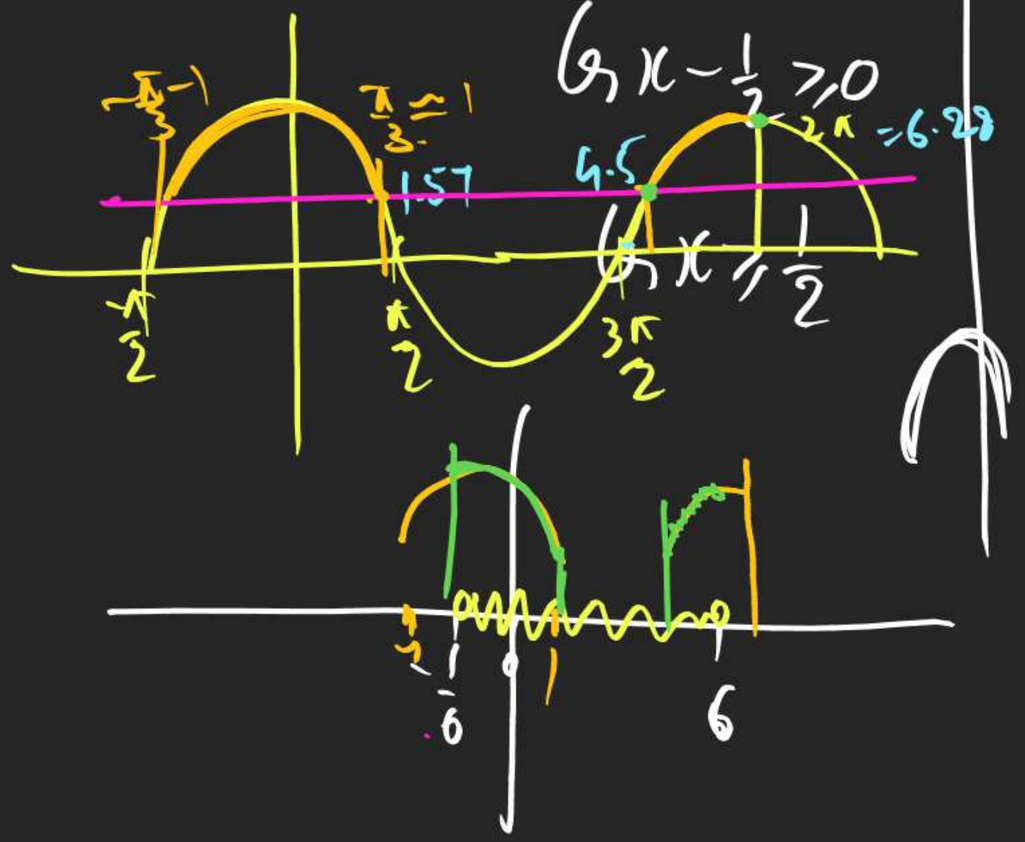
Nishant Jindal

$\frac{\pi}{3} = \frac{3.14}{3} = 1.$

$300 = \frac{5\pi}{3}$

$y = \frac{\sqrt{6x - 1/2}}{\sqrt{6 + 35x - 6x^2}} = \sqrt{6x - 1/2} \times \frac{1}{\sqrt{6 + 35x - 6x^2}}$

$x \in \left(-\frac{1}{6}, \frac{\pi}{3}\right] \cup \left[\frac{5\pi}{3}, 6\right)$



$6 + 35x - 6x^2 > 0$

$6x^2 - 35x - 6 < 0$

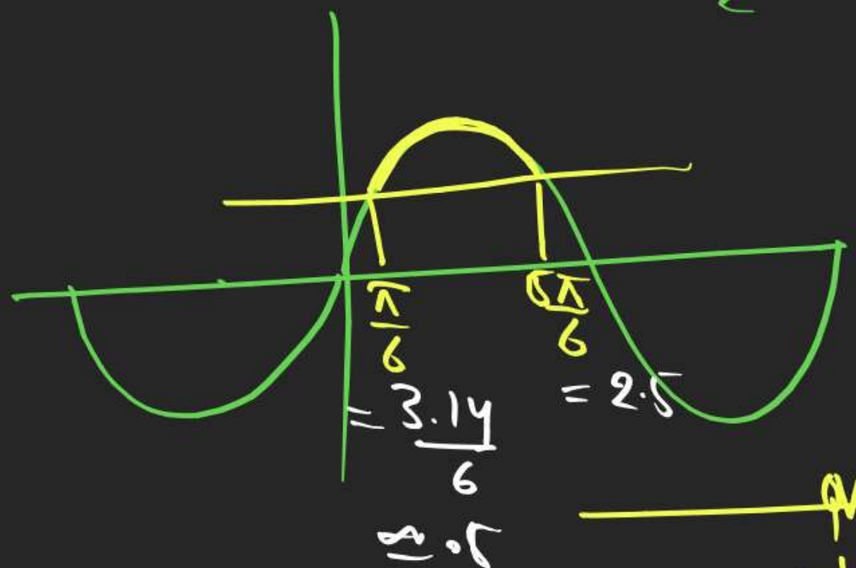
$6x^2 - 36x + x - 6 < 0$

$(6x + 1)(x - 6) < 0$

$-\frac{1}{6} < x < 6$

0 $y = \dfrac{\sqrt{\sin x - \frac{1}{2}}}{\sqrt{6+35x-6x^2}} = \sqrt{\sin x - \frac{1}{2}} \times \dfrac{1}{\sqrt{6+35x-6x^2}}$

$\sin x \geq \frac{1}{2}$



$6 + 35x - 6x^2 > 0$

$(6x+1)(x-6) < 0$

$-\frac{1}{6} < x < 6$

$x \in \left[\frac{\pi}{6}, \frac{5\pi}{6}\right]$