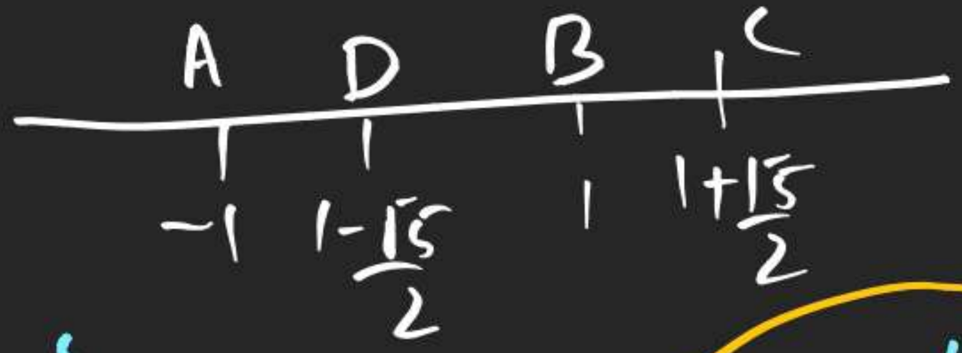
1) A B C D

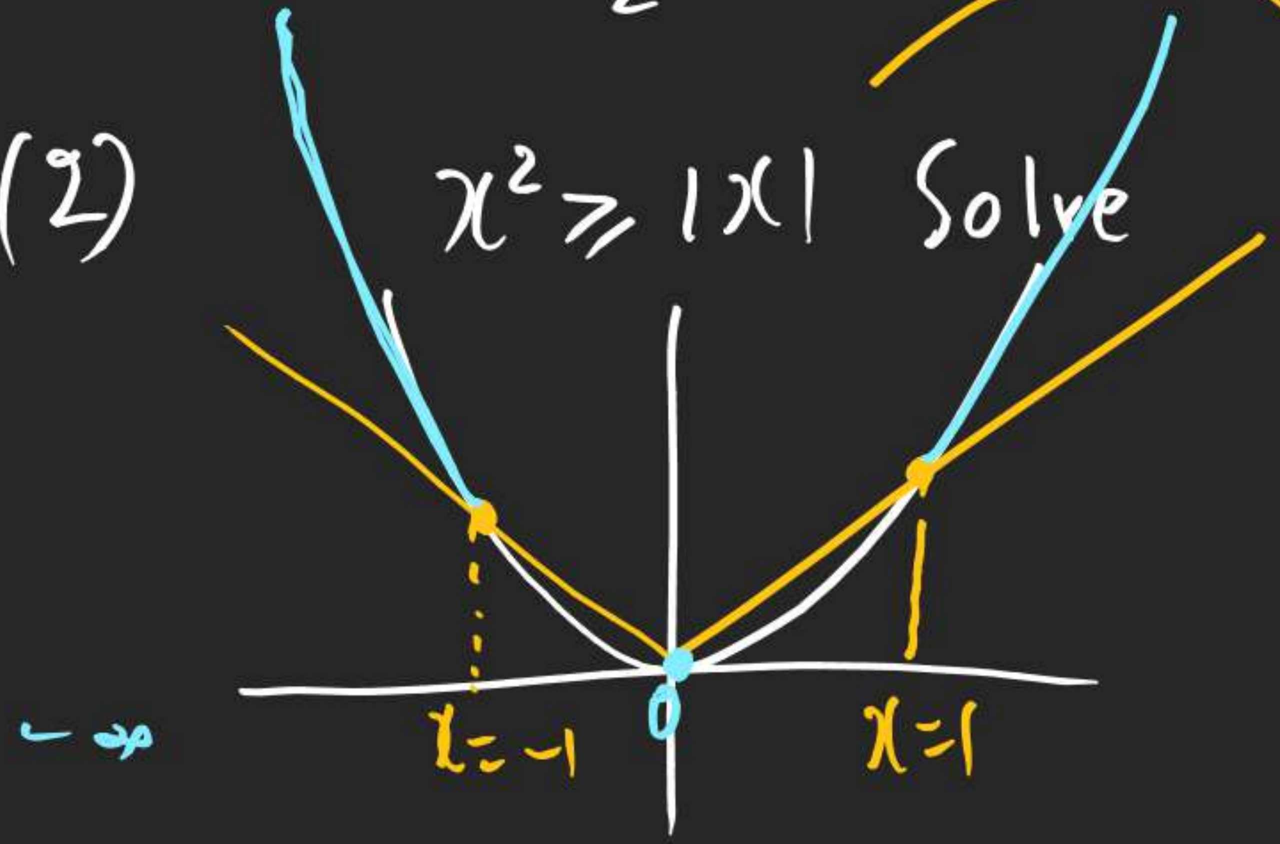
$-1,\ 1,\ \frac{1+\sqrt{5}}{2},\ \frac{1-\sqrt{5}}{2}$

$\frac{1-\sqrt{5}}{2} = \frac{1-2.2}{2} = \frac{-1.2}{2} = -.6$

$\frac{1+\sqrt{5}}{2} = \frac{1+2.2}{2} = \frac{3.2}{2} = 1.6$



(2) $x^2 \geq |x|$ Solve

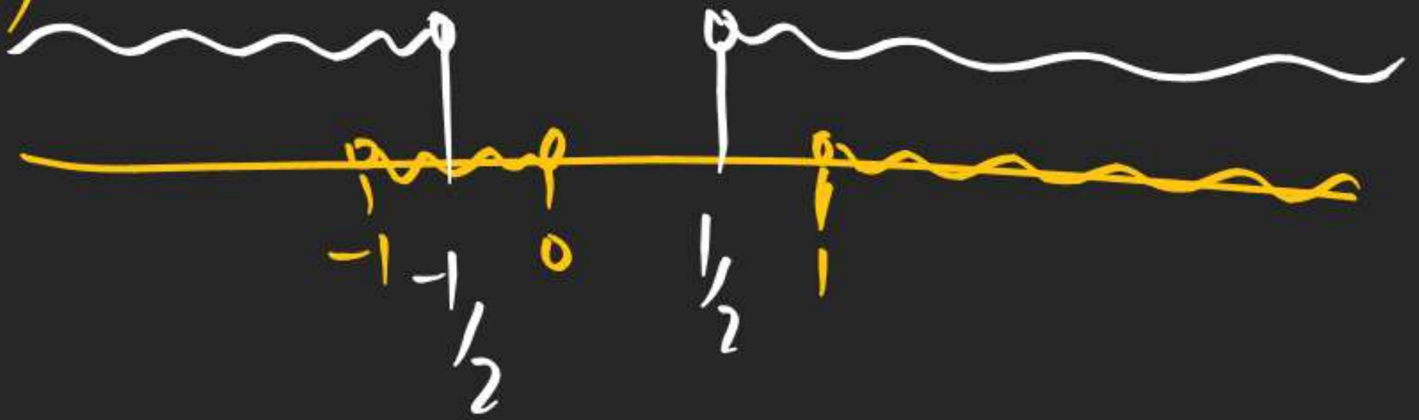


White graph, Yellow graph से ऊपर / Equal
कहाँ है Kahan.

$x \in (-\infty,-1] \cup [1,\infty) \cup \{0\}$

RELATION FUNCTION

3)

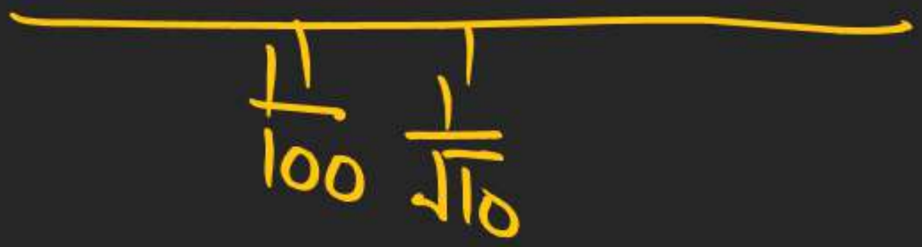


$x \in \left(-1, -\frac{1}{2}\right) \cup (1, \infty)$

$(x-2)(2x^2+9x+2)$

$x \in$

4) Arrange $\overset{a}{\frac{1}{100}}, \overset{b}{\frac{1}{\sqrt{10}}}$ on No Line.



5) $2x^3+5x^2-14x-8=0$

$x=1$ $\quad 2+5-14-8 \neq 0$

$\boxed{x=2}$ $\quad 16+20-28-8=0$ ✓

$(x-2)\overline{)\,2x^3+5x^2-14x-8\,}(2x^2+9x+4$

$\underline{2x^3 - 4x^2}$

$9x^2-14x$

$\underline{9x^2-18x}$

$4x-8$

$\underline{}$

$\times$

$\left(\frac{1}{2}\right)^x$ D_f

$\frac{1}{2} > 0,\ \frac{1}{2} \neq 1$

$x > 0$

Q2 $y = \sqrt{\log_{\frac{1}{2}} \frac{x}{x^2-1}}$ D_f. $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$\log_{\frac{1}{2}}\left(\frac{x}{x^2-1}\right) \geq 0$

Base<1

$\frac{x}{x^2-1} \leq 1$

$\frac{x}{x^2-1} - 1 \leq 0$

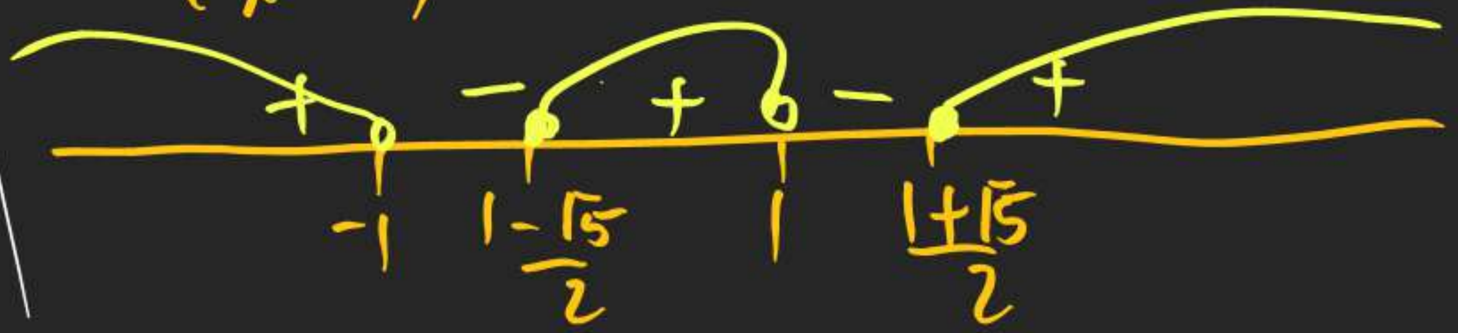
$\frac{x - x^2 + 1}{(x^2-1)} \leq 0$

$\frac{x^2 - x - 1}{(x-1)(x+1)} \geq 0$

$\frac{x}{x^2-1} > 0$

$\frac{(x)}{(x-1)(x+1)} > 0$

SD $\frac{\left(x-\left(\frac{1+\sqrt5}{2}\right)\right)\left(x-\left(\frac{1-\sqrt5}{2}\right)\right)}{(x-1)(x+1)} \geq 0$



Nishant Jindal

RELATION FUNCTION

Q. $y = \log_{100x}\left(\dfrac{\boxed{2\log_{10}x}+1}{-x}\right)$ find D_f

$\boxed{100}x > 0$ $100x \neq 1$

$+$ $x \neq \frac{1}{100}$

$\boxed{x > 0}$

$x = +ve$

$10 > 0,\ 10 \neq 1$ $\boxed{x > 0}$

$\dfrac{2\log_{10}x + 1}{(-)(+)} > 0$

$-ve$

$2\log_{10}x + 1 < 0$

$\log_{10}x < -\frac{1}{2}$

$x < 10^{-1/2}$

$x < \frac{1}{\sqrt{10}}$

$0 \quad \frac{1}{100} \quad \frac{1}{\sqrt{10}}$

$x \in \left(0, \frac{1}{\sqrt{10}}\right) - \left\{\frac{1}{100}\right\}$

Q. $y = \dfrac{1}{\sqrt{4x^2-1}} + \ln(x)(x^2-1)$ D_f?

$4x^2 - 1 > 0$

$(2x-1)(2x+1) > 0$

$\frac{1}{2}$ $-\frac{1}{2}$

BHALA

$x < -\frac{1}{2} \cup x > \frac{1}{2}$

$(x)(x-1)(x+1) > 0$

$- \quad + \quad - \quad +$

$-1 \quad 0 \quad 1$

$-1 \quad -\frac{1}{2} \quad 0 \quad \frac{1}{2} \quad 1$

$x \in \left(-1, -\frac{1}{2}\right) \cup (1, \infty)$

Nishant Jindal

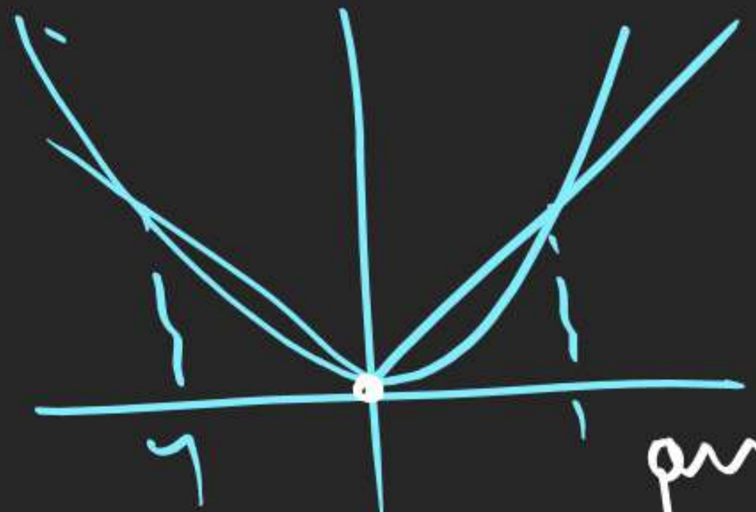
RELATION FUNCTION

$x \in [5,\infty) \cup \{4\}$ $\quad 0 \geq 0$

Q_5 $y = \sqrt{x^2 - |x|} + \dfrac{1}{\sqrt{9 - x^2}}$ D_f

$x^2 - |x| \geq 0$

$x^2 \geq |x|$



$9 - x^2 > 0$

$x^2 - 9 < 0$

$(x-3)(x+3) < 0$

BH

$-3 < x < 3$

$x \in (-3,-1] \cup [1,3) \cup \{0\}$

Q_6 $y = \sqrt{(x^2 - 3x - 10) \cdot \ln^2(x-3)}$ D_f $\log_e$

$(x^2 - 3x - 10) \cdot (\ln(x-3))^2 \geq 0$

⊕ Nh
Non-ve

Poly
$x \in R$

$x - 3 > 0$

$\boxed{x > 3}$

$\ln(x-3) = 0$

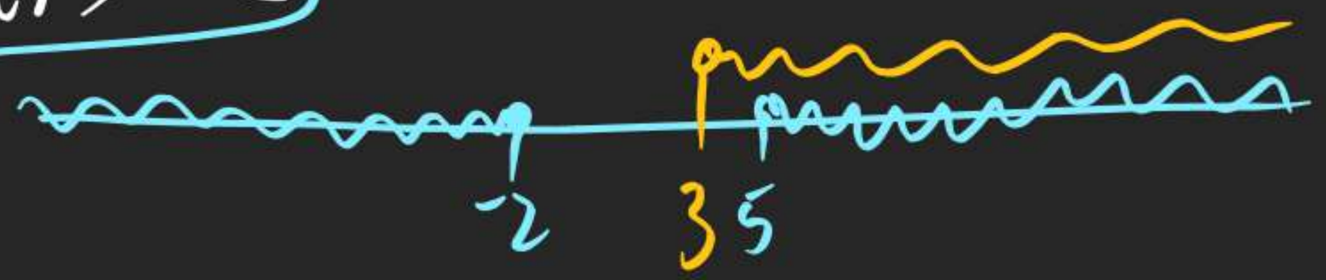
$\boxed{x = 4}$

$(x^2 - 3x - 10) \geq 0$

$(x-5)(x+2) \geq 0$

BH

$x \leq -2 \cup x \geq 5$



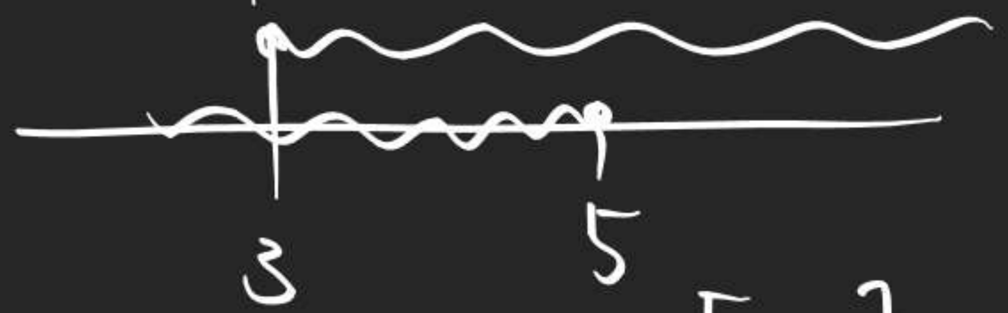
Nishant Jindal

RELATION FUNCTION

$\frac{\pi}{4} \approx \frac{3}{4} = .75$

Q1 $Y = \log_e\left[\sqrt{x-3} + \sqrt{5-x}\right]$ D_f

$x-3 \geq 0$	$5-x \geq 0$	$\sqrt{x-3} + \sqrt{5-x} > 0$
$x \geq 3$	$x \leq 5$	$\sqrt{\ }$ log HeHeHe



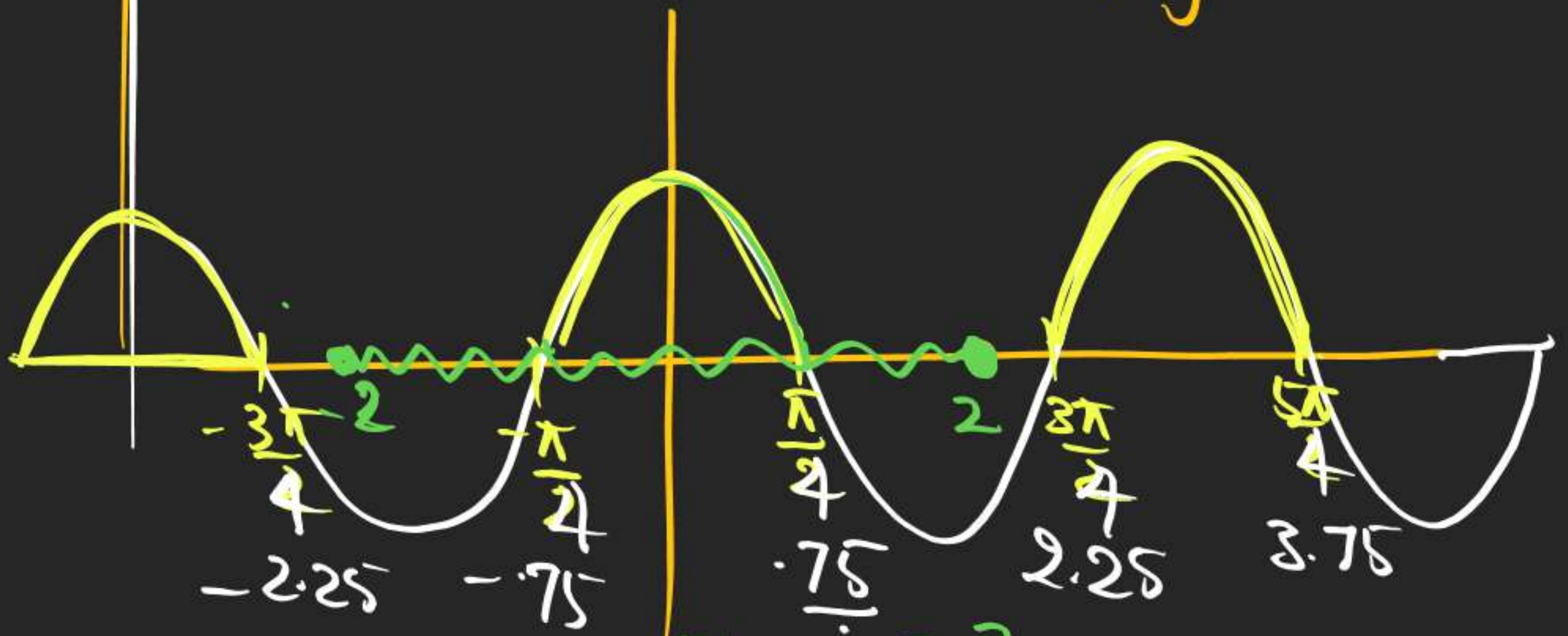
$x \in [3,5]$

Q8 $Y = \sqrt{\cos 2x}$ find D_f : $\boxed{x \in [-2,2]}$

$\cos 2x \geq 0$

Above X Axis

Cos 2x Ka graph Cos जैसा Hi Banega Bas Aadha Ho Jayega



$x \in \left[-\frac{\pi}{4}, \frac{\pi}{4}\right]$

Nishant Jindal

RELATION FUNCTION

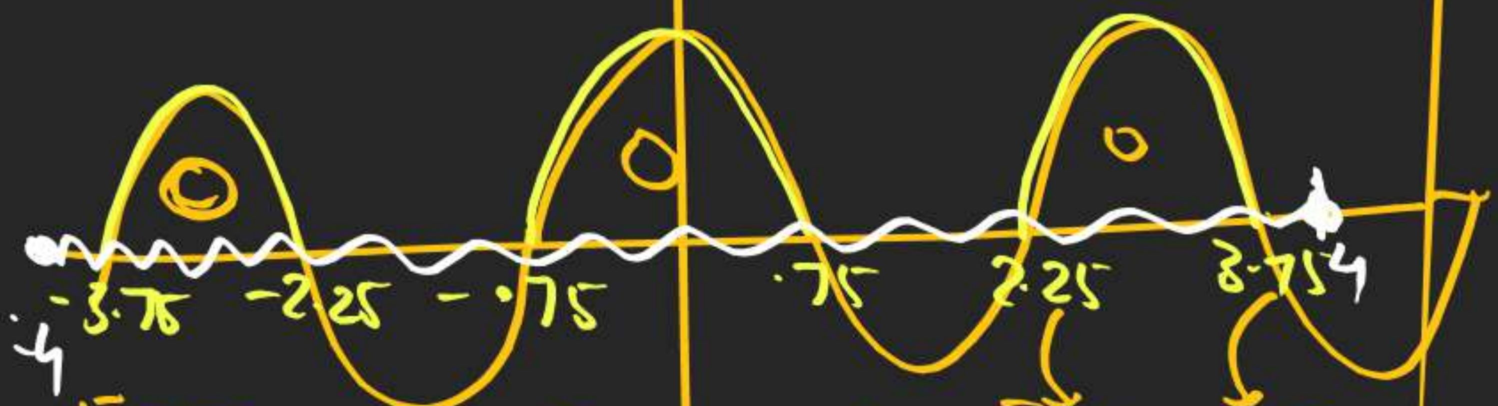
Q. $y = \sqrt{\cos 2x} + \sqrt{16 - x^2}$ D_f

Jee Main

$16 - x^2 \geq 0$

$x^2 - 16 \leq 0$

$-4 \leq x \leq 4$



$\left[-\frac{5\pi}{4}, -\frac{3\pi}{4}\right] \cup \left[-\frac{\pi}{4}, \frac{\pi}{4}\right] \cup \left[\frac{3\pi}{4}, \frac{5\pi}{4}\right]$

RELATION FUNCTION

Q. 4. $y = \log_7\left(\log_5 \log_3 \log_2 (2x^3+5x^2-14x)\right)$ Dj.

$7>0, 7\neq 1$

$\log_5 \log_3 \log_2 (2x^3+5x^2-14x) > 0$

$\log_3 \log_2 (2x^3+5x^2-14x) > 1$

$\log_2 (2x^3+5x^2-14x) > 3$

$2x^3+5x^2-14x > 8$

$2x^3+5x^2-14x-8 > 0$

$(x-2)(2x^2+9x+4) > 0$

$(x-2)(2x+1)(x+4) > 0$ Solve urself

$2>0;\ 2\neq 1$

$2x^3+5x^2-14x > 0$

$2x^3+5x^2-14x > 3$

$2x^3+5x^2-14x > 1$

Nishant Jindal

RELATION FUNCTION

Q ** 11

$y = \ln\left(\sqrt{x^2-5x-24} - x - 2\right)$ find D_f?

$\sqrt{x^2-5x-24} - x - 2 > 0$

$\sqrt{x^2-5x-24} > x+2$

Is tarah. K. ap Aise hi Karma

RHS = $x+2$ ⊕ $x+2>0$

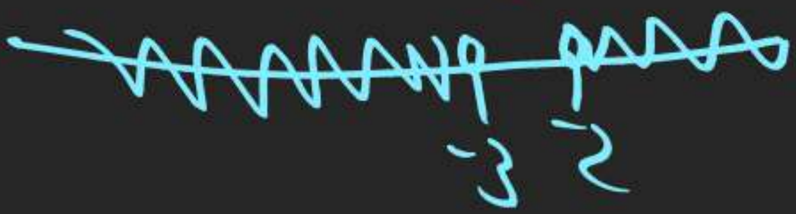
$x > -2$

Sqr $\sqrt{x^2-5x-24} > (x+2)$

$\cancel{x^2} - 5x - 24 > \cancel{x^2} + 4x + 4$

$9x < -28$ ϕ

$x < -\frac{28}{9} \simeq -3$



RHS = $x+2$ ⊖ $x+2<0$

$x<-2$

$\sqrt{x^2-5x-24} > x+2$

⊕ > ⊖

Hamesha hoga agar Jindu rh gya to.

$x^2-5x-24 \geq 0$

$(x-8)(x+3) \geq 0$

BH

$x \leq -3 \cup x \geq 8$

$x \in (-\infty, -3]$

Nishant Jindal

RELATION FUNCTION

Q.12 $2^x + 2^y = 2$ find D_f ?

$$2^y = 2 - 2^x$$

$$\log_2 2^y = \log_2 (2 - 2^x)$$

$$y \boxed{\log_2 2} = \log_2 (2 - 2^x)$$

$$y = \log_2 (2 - 2^x)$$

$2 > 0, 2 \neq 1$ $\quad 2 - 2^x > 0$

$$2^x < 2^1$$

$x < 1$ | $x \in (-\infty, 1)$

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

$x \in (-\infty, 1)$

Q $e^x + e^{f(x)} = e$

$x \in (-\infty, 1)$

0 1

Q.13 $y = \dfrac{1}{\log_{10}(1-x)} + \sqrt[3]{x+5}$ D_f ?

$y = \log_{1-x} 10 + (x+5)^{1/3}$ → $(x+5)$ Jesa D_f

R

Poly

$1 - x > 0$ & $1 - x \neq 1$

$x < 1$ $\quad x \neq 0$

$x \in (-\infty, 1) - \{0\}$

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Q D_f of $y = \sin\left(\log_e \frac{\sqrt{4-x^2}}{1-x}\right)$

R

D_f of $y = \log_e \frac{\sqrt{4-x^2}}{1-x}$

$\frac{\oplus}{ST} = \oplus$

$ST > 0$

$\frac{\sqrt{4-x^2}^{\,\oplus}}{(1-x)} > 0$

$1-x > 0$

$x < 1$

$4 - x^2 > 0$

$x^2 - 4 < 0$

$(x-2)(x+2) < 0$

BH

$-2 < x < 2$

$1 - x \neq 0$

$x \neq 1$

$x \in (-2, 1)$

$x \in (0, 1)$

Q15 $y = \log_2\left(-\log_{1/2}\left(1+\frac{1}{\sqrt[4]{x}}\right) - 1\right)$ D_f?

$-\log_{1/2}\left(1+\frac{1}{\sqrt[4]{x}}\right) - 1 > 0$

$-\log_{1/2}\left(1+\frac{1}{\sqrt[4]{x}}\right) > 1$

$\log_{1/2}\left(1+\frac{1}{\sqrt[4]{x}}\right) < -1$

$1 + \frac{1}{\sqrt[4]{x}} > 2$

2 बार sq

$\frac{1}{\sqrt[4]{x}} > 1 \Rightarrow \sqrt[4]{x} < 1 \Rightarrow \boxed{x < 1}$

$1 + \frac{1}{\sqrt[4]{x}} > 0$

$1 + \frac{1}{\sqrt[4]{x}}^{\oplus} > 0$

$\oplus + \oplus > 0$

$x \in R$

$\frac{1}{\sqrt[4]{x}}$

$\boxed{x > 0}$

Nishant Jindal

Finest Qs of Dom → Repeat

Q16. $f(x) = {}^{x+1}C_{2x}$, $g(x) = {}^{2x-8}C_{x+1}$

& $h(x) = f(x) \cdot g(x)$, find D_f of $h(x)$?

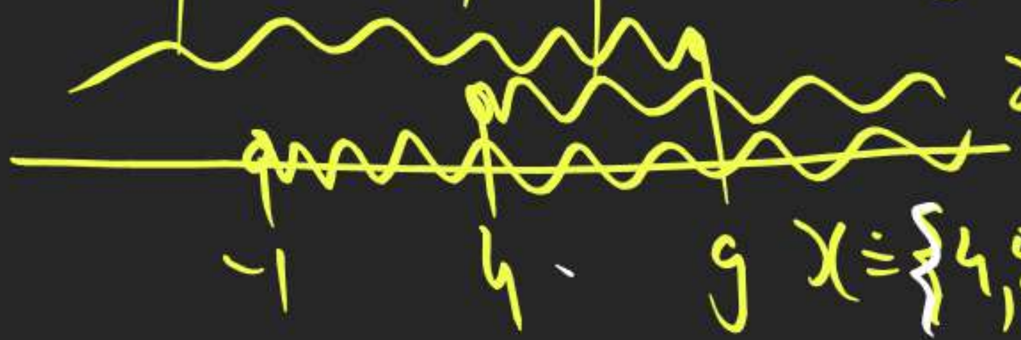
$h(x) = \boxed{{}^{x+1}C_{2x-8}} \times \boxed{{}^{2x-8}C_{x+1}}$

${}^{n}C_r$ / ${}^{n}P_r$	
1) $n > 0$	3) $n \geq r$
2) $r \geq 0$	4) $n, r = \text{Int}$

① $x+1 > 0$, $x > -1$

② $2x-8 \geq 0$, $x \geq 4$

③ $x+1 \geq 2x-8$, $x \leq 9$



$x \in [4, 9]$

$x = \{4, 5, 6, 7, 8, 9\}$

$\cap$

① $2x-8 > 0$, $x > 4$

② $x+1 \geq 0$, $x \geq -1$

$2x-8 \geq x+1$, $x \geq 9$

$x \in [9, \infty)$

$x \in \{9, 10, 11, 12, 13 - - - \infty\}$

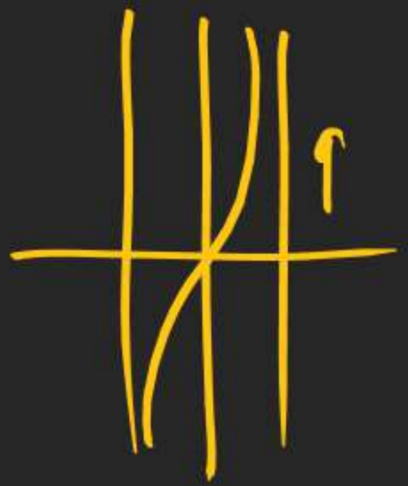
$x = \{9\}$ D_f

Nishant Jindal

Q_{17} If $f(x)$ is defined for $\boxed{x \in [0,1]}$

find D_f of $f(\tan x)$?

$f(\tan x)$ will be defined



$0 \le \tan x \le 1$

$\tan 0 \le \tan x \le \tan \frac{\pi}{4}$

$0 \le x \le \frac{\pi}{4}$

$x \in \left[n\pi + 0, n\pi + \frac{\pi}{4}\right]$

Q

$\{Dm\}$