

$$\text{الف) } y = \frac{x+3}{2x^3+3x^2-8x+3} \Rightarrow 2x^3+3x^2-8x+3=0 \Rightarrow (x-1)(2x^2+5x-3) \Rightarrow$$

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راه حل هایی که نوشتیم باریت مشابه نبود!

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

$$D_f = \mathbb{R} - \left\{ -\frac{4}{1}, \frac{1}{1}, 1 \right\}$$

چیزه دانه تا برصفتی و معرفی بازه ها
به سبب kn و ... را اشتباه داری دوباره
بفون

$$\text{ب) } y = \frac{x+3}{2x^3+9x^2+10x+3} \Rightarrow 2x^3+9x^2+10x+3=0 \Rightarrow (x+1)(2x^2+7x+3) \Rightarrow$$

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

$$D_f = \mathbb{R} - \left\{ -\frac{4}{1}, -1, -\frac{1}{1} \right\}$$

$$\text{الف) } y = \frac{x+3}{x^3-2x^2+2x+1} \Rightarrow x^3-2x^2+2x+1=0 \Rightarrow (x-1)(x^2-x+1) \Rightarrow -2$$

$$(x-1)(x^2-x+1) \Rightarrow (x-1)(x^2-x+1) \Rightarrow x=1 \Rightarrow D_f = \mathbb{R} - \{1\}$$

$$b^2 - 4ac = 1 - 4 = -3$$

$$\text{ب) } y = \sqrt{\frac{x+3}{x^3-2x^2+2x-1}} \Rightarrow \frac{x+3}{x^3-2x^2+2x-1} \geq 0 \Rightarrow \frac{x+3}{(x-1)(x^2-x+1)} \geq 0$$

$$\begin{array}{c} -3 \quad 1 \\ + \quad | \quad - \quad | \quad + \\ 0 \quad 0 \quad 0 \quad 0 \end{array}$$

$$\Rightarrow D_f = (-\infty, -3] \cup (1, +\infty)$$

$$y = \frac{\gamma}{x^2 - \Delta |x-1| - \gamma x + \Delta} \Rightarrow x^2 - \Delta |x-1| - \gamma x + \Delta \neq 0$$

$$\text{I: } x \leq 1, |x-1| = 1-x \Rightarrow x^2 - \Delta(1-x) - \gamma x + \Delta = x^2 - \Delta x + \Delta - \gamma x + \Delta =$$

$$x^2 - \gamma x + 10 = 0 \Rightarrow (x-\gamma)(x-\Delta) = 0 \Rightarrow x = \gamma, \Delta$$

$$\text{II } x > 1, |x-1| = x-1 \Rightarrow x^2 - \Delta(x-1) - \gamma x + \Delta = x^2 - \Delta + \Delta x - \gamma x + \Delta =$$

$$x^2 + \gamma x = 0 \Rightarrow x(x+\gamma) = 0 \Rightarrow x = 0, -\gamma$$

$$\text{I} \cup \text{II} = \boxed{R - \{-\gamma, 0, \gamma, \Delta\}} \quad \text{P}$$

$$\text{الف) } y = \sqrt{[-x] - 2} \Rightarrow [-x] - 2 \geq 0 \Rightarrow [-x] \geq 2 \Rightarrow \frac{[-x]}{-1} \leq -2$$

$$-x = t \Rightarrow [t] \geq 2 \Rightarrow t \geq 2 \Rightarrow -x \geq 2 \Rightarrow x \leq -2 \Rightarrow x = (-\infty, -2]$$

جواب نهایی: $x \leq -2$

$$\text{ب) } y = \frac{5x^2 + 4}{[x]^2 - 2[x] - 3}$$

$$\Rightarrow [x]^2 - 2[x] - 3 \neq 0 \Rightarrow [x] = t \Rightarrow t^2 - 2t - 3 = 0$$

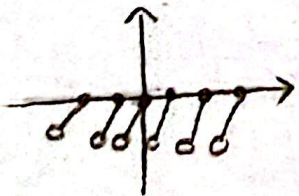
$$(t - 3)(t + 1) = 0 \Rightarrow t \neq -1, 3 \Rightarrow [x] \neq -1, 3 \Rightarrow \begin{aligned} \text{I: } [x] = 3 &\Rightarrow [3, 4) \\ \text{II: } [x] = -1 &\Rightarrow (0, -1] \end{aligned}$$

$$D_f = (-\infty, -1) \cup [0, 3) \cup [4, +\infty)$$

$$\text{الف) } y = \sqrt{[x - \frac{1}{3}] + [x + \frac{2}{3}]} \Rightarrow [x - \frac{1}{3}] + [x + \frac{2}{3}] \geq 0 \Rightarrow$$

$$[x - \frac{1}{3}] \geq 0 \Rightarrow x \geq \frac{1}{3}, [x + \frac{2}{3}] \geq 0 \Rightarrow x \geq -\frac{2}{3} \Rightarrow x \geq \frac{1}{3} \Rightarrow [\frac{1}{3}, +\infty)$$

$$\text{ب) } y = \sqrt{[x - \frac{1}{3}] + [\frac{1}{3} - x]} \Rightarrow [a] + [-a] \Rightarrow \left\{ k + \frac{1}{3} \mid k \in \mathbb{Z} \right\}$$



الف) $y = \frac{\cot x + 1}{\tan x + 1}$

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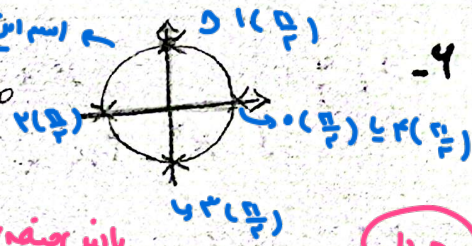
اسم این ۴ نقطه با هم $k\pi$ است چون افتاد بین آنها $\frac{\pi}{4}$ است

$$= \frac{\frac{\cos x}{\sin x} + 1}{\frac{\sin x}{\cos x} + 1} \Rightarrow \cos x \neq 0, \tan x \neq 0$$

$\tan x + 1 \neq 0 \rightarrow \tan x \neq -1$

$$D_f = R - \left\{ \frac{k\pi}{2} \right\}$$

پایین منفی



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ب) $y = \sqrt{1 - 4\sin^2 x}$

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نام مثبت

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



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

$$R - \left(2k\pi - \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right)$$

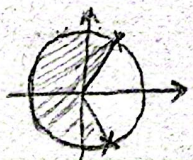
منفی بعد از
از حد تنزیلی

الف) $y = \sqrt{2\sin x - 1}$



$$\left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$$

ب) $y = \sqrt{1 - 2\cos x}$



$$R - \left(2k\pi - \frac{\pi}{3}, 2k\pi + \frac{\pi}{3} \right)$$

الف) $y = \arcsin(x^2 + 3x + 1) \Rightarrow -1 \leq x^2 + 3x + 1 \leq 1 \Rightarrow -1 \leq x^2 + 3x + 1 \leq 1$
 $x^2 + 3x + 1 \geq 0 \Rightarrow (x+1)(x+2) \geq 0 \Rightarrow x \leq -2 \text{ or } x \geq -1$
 $x^2 + 3x + 1 \leq 1 \Rightarrow x^2 + 3x \leq 0 \Rightarrow -3 \leq x \leq 0$
 $\Rightarrow [-3, -1] \cup [-1, 0]$

ب) $\cos y = \sqrt{5-2x} \Rightarrow I: 5-2x \geq 0 \Rightarrow 2x \leq 5 \Rightarrow x \leq \frac{5}{2}$
 $II: -1 \leq 5-2x \leq 1 \Rightarrow -9 \leq -2x \leq -6 \Rightarrow 3 \geq x \geq 2 \Rightarrow I \cap II \Rightarrow [2, \frac{5}{2}]$

الف) $y = \log_2(1 - \log_3 x)$ $\Rightarrow 1 - \log_3 x > 0 \Rightarrow \log_3 x < 1 \Rightarrow x < 3$
 $\log_3 x > 0 \Rightarrow x > 0 \Rightarrow I \cap II = (0, 3)$

ب) $y = \log_2(1 - \log_{\frac{1}{2}} x)$ $\Rightarrow I: \log_{\frac{1}{2}} x > 0 \Rightarrow x < 1$ $II: 1 - \log_{\frac{1}{2}} x > 0 \Rightarrow \log_{\frac{1}{2}} x < 1 \Rightarrow x > \frac{1}{2}$
 $\Rightarrow I \cap II = (\frac{1}{2}, 1)$
 چون متباين است و البته نموده عرض مرسته
 $\log_{\frac{1}{2}} x < 1 \Rightarrow x > \frac{1}{2} \rightarrow Df = (\frac{1}{2}, +\infty)$

الف) $y = \sqrt{2^{4x} - x^2} - 1 \Rightarrow 2^{4x} - x^2 \geq 0 \Rightarrow 2^{4x} \geq x^2 \Rightarrow 2^{2x} \geq x$
 $2^{2x} \geq x \Rightarrow -(x^2 - 4x + 3) \geq 0 \Rightarrow -(x-3)(x-1) \geq 0 \Rightarrow x \in [1, 3]$

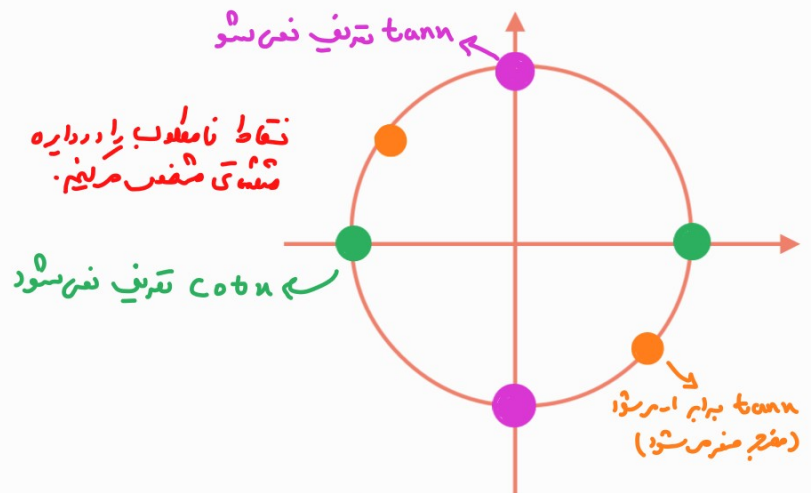
ب) $y = \left(\frac{3x+5}{2x+1} \right)!$ $\frac{3x+5}{2x+1} \in \mathbb{N} \Rightarrow 3x+5 = 2xw + 1 \Rightarrow x = \frac{-5 + 2w}{3-2w}$
 $\{x \mid w \in \mathbb{N}, \frac{3x+5}{2x+1} = w\}$

مسئله معروف بازدم B

الف - ۴) $[-n] - 2 \geq 0 \rightarrow [-n] \geq 2 \rightarrow -n \geq 2 \rightarrow n \leq -2 \rightarrow D_f = (-\infty, -2]$

الف - ۵) $y = \frac{\cot x + 1}{\tan x + 1}$

نقاط نامعلوم را در دایره
مستوی مشخص میکنیم.

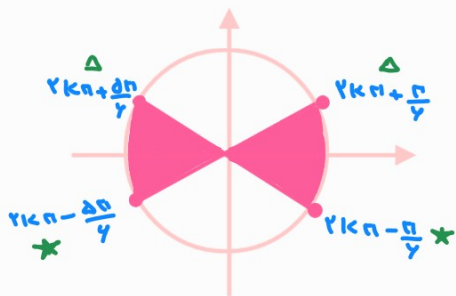


$x \neq k\pi + \frac{\pi}{2}$

$x \neq k\pi + \frac{\pi}{4} \cup x \neq k\pi$

$\rightarrow x \neq \frac{k\pi}{4} \rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{4}, k\pi + \frac{\pi}{4} \right\}$

ب - ۴) $1 - 4 \sin^2 x \geq 0 \rightarrow 4 \sin^2 x \leq 1 \rightarrow \sin^2 x \leq \frac{1}{4} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$



$\rightarrow D_f = \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right]$

ب - ۵) $y = \log_r \left(1 - \log_r \frac{n}{r} \right) \rightarrow \log_r \frac{n}{r} \rightarrow n > 0$

$\hookrightarrow 1 - \log_r \frac{n}{r} > 0 \rightarrow \log_r \frac{n}{r} < 1 \xrightarrow{\text{مناسب (1,0)}} n > \frac{1}{r}$

$D_f = \left(\frac{1}{r}, +\infty \right)$