

19,5 اخير

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الف) $\frac{x+2}{2x^2+3x^2-11x+2}$

$(x-1)(2x-1)(x+2) \neq 0 \quad x \neq 1, \frac{1}{2}, -2 \quad D_f: \mathbb{R} - \left\{ \frac{1}{2}, -2 \right\}$

ب) $\frac{x+2}{2x^2+9x^2+10x+2}$

$(x+1)(2x+1)(x+2) \neq 0 \quad x \neq -1, -\frac{1}{2}, -2 \quad D_f: \mathbb{R} - \left\{ -\frac{1}{2}, -2 \right\}$

الف) $y = \frac{x+2}{x^2-2x^2+2x-1}$

$(x-1)(x^2-x+1) \neq 0 \quad x \neq 1 \quad D_f: \mathbb{R} - \{1\}$

ب) $y = \sqrt{\frac{x+2}{x^2-2x^2+2x-1}}$

$\sqrt{\frac{x+2}{(x-1)(x^2-x+1)}} \quad \frac{-2}{1} \leq \frac{1}{2} \quad D_f: (-\infty, 1] \cup (1, +\infty)$

$y = \frac{x}{x^2-5x-14x+4}$

$(x-7)(x+2) \neq 0 \quad x \neq 7, -2 \quad D_f: \mathbb{R} - \{7, -2\}$

الف) $y = \sqrt{[-x]-2}$

$[-x] \geq 2 \rightarrow -x \geq 2 \rightarrow x \leq -2 \quad D_f: (-\infty, -2]$

ب) $y = \frac{2x^2+4}{[x]^2-2[x]-2}$

$([x]-2)([x]+1) \neq 0 \quad [x] \neq 2, -1 \quad x \in (-1, 2) \cup [2, +\infty) \quad D_f: \mathbb{R} - (-1, 2) \cup [2, +\infty)$

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

$\sqrt{[x+\frac{2}{3}]+[x-\frac{1}{2}]} \geq 0 \quad [x+\frac{2}{3}] \geq \frac{1}{2} \rightarrow x+\frac{2}{3} \geq \frac{1}{2} \rightarrow x \geq \frac{1}{6} \quad D_f: [\frac{1}{6}, +\infty)$

ب) $y = \sqrt{[x-\frac{1}{2}]+[\frac{1}{2}-x]}$

$\sqrt{[x-\frac{1}{2}]+[-(x+\frac{1}{2})]} \quad \text{if } \begin{cases} x \in \mathbb{Z} & [a]+[a]=0 \\ x \notin \mathbb{Z} & [a]+[a]=-1 \end{cases} \quad D_f: \{x/n \mid x = k + \frac{1}{2}, k \in \mathbb{Z}\} \quad x - \frac{1}{2} \in \mathbb{Z} \quad x \in \mathbb{Z}$

الف) $\frac{\cot x + 1}{\tan x + 1}$

$\sin x, \cos x \neq 0 \quad \tan x \neq -1$

ب) $\sqrt{1-\sin^2 x}$

$\sin^2 x \leq \frac{1}{4} \rightarrow |\sin x| \leq \frac{1}{2}$

$D_f: \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{2} \right\} \quad D_f: [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$



$$9- \text{ب) } y = \log_r (1 - \log \frac{n}{r}) \rightarrow \log \frac{n}{r} \rightarrow n > 0$$

$$\hookrightarrow 1 - \log \frac{n}{r} > 0 \rightarrow \log \frac{n}{r} < 1 \xrightarrow{\text{منابع (نور)}} n > \frac{1}{r}$$

$$Df = (\frac{1}{r}, +\infty)$$

$$\text{الف) } y = \sqrt{\sin x - 1} \geq 0 \quad \sin x \geq \frac{1}{r}$$

$$\text{ب) } y = \sqrt{1 - \cos x} \geq 0 \quad \cos x \leq \frac{1}{r}$$

$$Df = [rk\pi, \frac{\pi}{r}] \cup [\frac{\pi}{r}, rk\pi + \frac{d\pi}{r}]$$

$$Df = [rk\pi + \frac{\pi}{r}, rk\pi + \frac{d\pi}{r}]$$

$$\text{الف) } y = \arcsin(x^2 + 2n + 1) - 1, (x^2 + 2n + 1) \leq 1$$

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

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

$$Df = [-\frac{1}{2}, -\frac{1}{4}] \cup [-\frac{1}{4}, 0]$$

$$\text{ب) } y = \sqrt{d - x^2} \geq 0 \quad \sqrt{d - x^2} \leq 1 \quad d - x^2 \leq 1 \rightarrow d - 1 \leq x^2 \leq d$$

$$d - x^2 \geq 0 \quad x \leq \sqrt{d} \quad \xrightarrow{n} \sqrt{d} \geq x \geq \sqrt{d-1} \quad x - \frac{1}{r}$$

$$Df = [\sqrt{d-1}, \frac{d}{r}] \cup [\frac{d}{r}, \sqrt{d}]$$

$$\text{الف) } y = \log_r (1 - \log \frac{x}{r})$$

$$Df = (0, r)$$

$$\log \frac{x}{r} < 1$$

$$x < r$$

$$(1, \infty)$$

$$\log \frac{x}{r} < 1 \rightarrow x > \frac{1}{r} \rightarrow Df = (\frac{1}{r}, +\infty)$$

$$\text{ب) } y = \log_r (1 - \log \frac{n}{r})$$

$$Df = (0, \frac{1}{r})$$

$$1 - \log \frac{n}{r} > 0$$

$$\log \frac{n}{r} < 1$$

$$n < \frac{1}{r}$$

چون منابع بین 0 و 1 است و ما معادله عوض می شود!

$$\text{الف) } y = \sqrt{r^{2n+2} - 1} \geq 0 \quad r^{2n+2} \geq 1 \quad r^{2n+2} \geq r^2 \quad r^{2n+2} \geq r^2$$

$$r^{2n+2} \geq 1 \quad r^{2n+2} \geq r^2 \quad r^{2n+2} \geq r^2$$

$$r^{2n+2} \geq r^2 \quad r^{2n+2} \geq r^2 \quad r^{2n+2} \geq r^2$$

$$\text{ب) } y = \frac{(r^{2n+2} - 1)}{r^{2n+2}}$$

$$r^{2n+2} \geq 1 \quad r^{2n+2} \geq 1 \quad r^{2n+2} \geq 1$$

$$Df = \{n / n \leq \frac{r^{2k+d} - r^{2k-2}}{r^{2k-2}}, k \in \mathbb{N}\}$$