

(الف) $y = \frac{x+4}{2x^3+4x^2-1x+4}$ $\Rightarrow \frac{2x^3+4x^2-1x+4}{(x-1)(2x^2+5x+4)}$ $\Rightarrow \frac{2x^3+4x^2-1x+4}{2x^3+5x^2-2x-4} \mid x-1$

$$\begin{array}{r} 2x^3+4x^2-1x+4 \\ -(2x^3+5x^2-2x-4) \\ \hline -x^2+3x+8 \end{array}$$

$$\begin{array}{r} -x^2+3x+8 \\ -(x^2+4x-4) \\ \hline -7x+12 \end{array}$$

$$\begin{array}{r} -7x+12 \\ (7x+28) \\ \hline -16 \end{array}$$

$$D_f = R - \left\{ 1, -\frac{1}{2}, \frac{1}{7} \right\}$$

(ب) $y = \frac{x+4}{2x^3+9x^2+1x+4}$ $\Rightarrow \frac{2x^3+9x^2+1x+4}{(x+1)(2x^2+7x+4)}$ $\Rightarrow \frac{2x^3+9x^2+1x+4}{2x^3+7x^2+2x+2} \mid x+1$

$$\begin{array}{r} 2x^3+9x^2+1x+4 \\ -(2x^3+7x^2+2x+2) \\ \hline 2x^2-1x+2 \end{array}$$

$$\begin{array}{r} 2x^2-1x+2 \\ -(2x^2+4x+2) \\ \hline -5x \end{array}$$

$$\begin{array}{r} -5x \\ (5x+5) \\ \hline -5 \end{array}$$

$$D_g = R - \left\{ -1, -\frac{1}{5}, -\frac{1}{7} \right\}$$

(ج) $y = \frac{x+4}{x^3-2x^2+2x-1}$ $\Rightarrow \frac{x^3-2x^2+2x-1}{(x-1)(x^2-x+1)}$ $\Rightarrow \frac{x^3-2x^2+2x-1}{x^3-x^2-x+1} \mid x-1$

$$\begin{array}{r} x^3-2x^2+2x-1 \\ -(x^3-x^2-x+1) \\ \hline -x^2+3x-2 \end{array}$$

$$\begin{array}{r} -x^2+3x-2 \\ -(x^2-x+1) \\ \hline -2x-1 \end{array}$$

$$\begin{array}{r} -2x-1 \\ (2x-2) \\ \hline -3 \end{array}$$

$$D_f = R - \left\{ 1 \right\}$$

(د) $y = \frac{x+4}{x^3-2x^2+2x-1}$ $\Rightarrow \frac{x+4}{(x-1)(x^2-x+1)}$ $\Rightarrow \frac{x+4}{x^2-x+1}$ $D_g = \left\{ -\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4} \right\}$

$y = \frac{2}{x^2-8x+11}$ $\Rightarrow \frac{2}{(x-4)(x-3)}$ $\Rightarrow \frac{2}{x^2-7x+12}$

$$\begin{array}{r} 2 \\ -(x^2-7x+12) \\ \hline x^2-7x+12 \end{array}$$

$$\begin{array}{r} x^2-7x+12 \\ -(x^2-8x+11) \\ \hline x+1 \end{array}$$

$$D_f = R - \left\{ 0, \frac{1}{3}, \frac{1}{4} \right\}$$

الف) $y = \sqrt{[-x]-2} \geq 0$ $[-x] \geq 2$ $-x \geq 2$ $x \leq -2$ $D_f = (-\infty, -2]$ (1)

ب) $y = \frac{0x^5 + 4}{[x]^2 - 1[x] - 10} \neq 0$ $([x]-4)([x]+1) \neq 0$ $[x] \neq 4$ $[x] \neq -1$ $D_g = \mathbb{R} \setminus \{4, -1\} \cup (0, 1]$ (2)

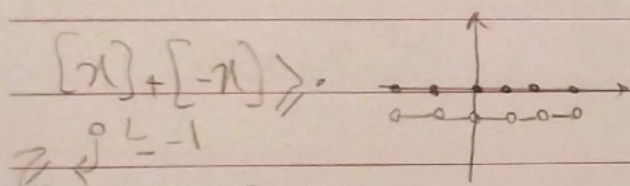
$[10, 14)$ $(0, -1]$

الف) $y = \sqrt{[x - \frac{1}{10}] + [x + \frac{2}{10}]} \geq 0$ $[x + 1 - \frac{1}{10}]$ $[x - \frac{1}{10}] \geq -\frac{1}{10}$ $D_f = [\frac{1}{10}, +\infty)$ (3)

$x - \frac{1}{10} \geq 0$ $x \geq \frac{1}{10}$

ب) $y = \sqrt{[x - \frac{1}{10}] + [\frac{1}{10} - x]} \geq 0$ $x - \frac{1}{10} \in \mathbb{Z}$ $D_g = \{x | x = k + \frac{1}{10}, k \in \mathbb{Z}\}$ (4)

$x \in \mathbb{Z} + \frac{1}{10}$



الف) $y = \frac{\cos x}{\sin x + 1}$ $\tan x + 1 \neq 0$ $\tan x \neq -1$ $D_f = \mathbb{R} \setminus \{k\pi, k\pi - \frac{\pi}{4}\}$ (5)

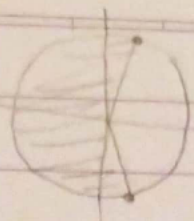
ب) $y = \sqrt{1 - \sin^2 x} \geq 0$ $-\frac{1}{4} \leq \sin x \leq \frac{1}{4}$ $D_g = [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$ (6)

$\sin x \leq \frac{1}{4}$

الف) $y = \sqrt{\sin x - 1} \geq 0$ $\sin x \geq 1$ $D_f = [k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}]$ (7)

١) $y = \sqrt{1 - x \cos x} \geq 0$

$\cos x \leq \frac{1}{x}$



$D_f = [Kx + \frac{\pi}{4}, Kx + \frac{5\pi}{4}]$

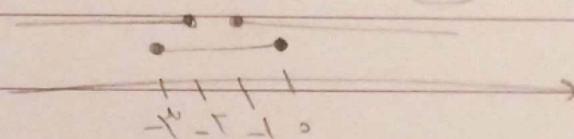
الف) $y = \arcsin(x^2 + x + 1) \rightarrow x^2 + x + 1 \in [-1, 1]$

(1)

$D_f = [-\frac{5}{4}, -\frac{1}{4}] \cup [-1, 0]$

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$\begin{aligned} & \cdot x^2 + x + 1 \leq 1 \quad x^2 + x \leq 0 \\ & \cdot (x+1)(x) \leq 0 \quad x(x+1) \leq 0 \\ & \frac{-5}{4} \quad -\frac{1}{4} \quad 0 \quad \frac{0}{1} \quad \frac{1}{1} \end{aligned}$



ب) $\cos y = \sqrt{0.5x} - 1 \rightarrow \sqrt{0.5x} \leq 1$

$x \leq 2$

بجاء

$|\Delta - 2x| \leq 1$

$D_g = [2, 5]$

$-1 \leq \Delta - 2x \leq 1$

$2x \leq 4 \quad 4 \leq 2x \quad 2x \leq 4$

$x \leq 2$

$\cap \rightarrow [2, 4] \cap [2, 5]$

الف) $y = \log_r(1 - \log_{\frac{1}{r}} x) \geq 0 \quad x > 0 \quad \cap$

(1)

$\log_{\frac{1}{r}} x < 1 \quad x < r \quad D_f = (0, r)$

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ب) $y = \log_r(1 - \log_{\frac{1}{r}} x) \geq 0 \quad x > 0 \quad \cap \quad \log_{\frac{1}{r}} x < 1 \rightarrow x < r \rightarrow D_f = (\frac{1}{r}, +\infty)$

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

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

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

الف) $y = \sqrt{x^2 - x^2 - 1} \geq 0$

$x^2 - x^2 \geq 1$

$x^2 - x^2 \geq 1$

$x^2 - x^2 \geq 1$

$(x-1)(x-1) \leq 0$

$\frac{1}{1} = \frac{1}{1}$

$D_f = [1, 1]$

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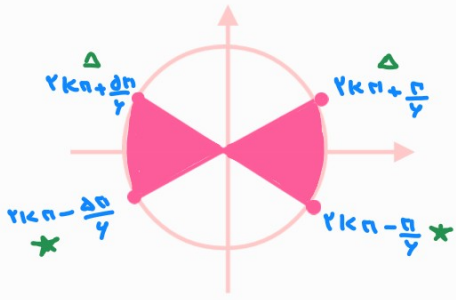
(1)

ب) $y = \frac{(x+0)}{x+0} \cdot \frac{(x+0)}{x+0} = \frac{x+0}{x+0}$

$D_g = \{x/x = \frac{x+0}{x+0}, x \in \mathbb{R}\}$

s.a.m

$$4- \text{ب}) \quad 1 - r \sin^2 n \geq 0 \rightarrow r \sin^2 n \leq 1 \rightarrow \sin^2 n \leq \frac{1}{r} \rightarrow -\frac{1}{r} \leq \sin n \leq \frac{1}{r}$$



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

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

$$\hookrightarrow 1 - \log^{\frac{n}{r}} \frac{1}{r} > 0 \rightarrow \log^{\frac{n}{r}} \frac{1}{r} < 1 \xrightarrow{\text{منابعین (1,0)}} n > \frac{1}{r}$$

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