

الف)

$$\frac{x+3}{2x^3+3x^2-11x+3} \rightarrow \frac{2x^3+3x^2-11x+3}{2x^3+3x^2-11x+3} \cdot \frac{(x-1)}{(x-1)} \rightarrow \frac{2x^3+3x^2-11x+3}{2x^3+3x^2-11x+3} \cdot \frac{(x-1)}{(x-1)}$$

$$D_f = \mathbb{R} - \left\{ -\frac{3}{2}, \frac{1}{2}, 1 \right\}$$

$$\frac{(2x-1)(x+3)(x-1)}{\frac{1}{2} \quad -3 \quad 1}$$

ب)

$$\frac{2x^3+9x^2+10x+3}{-2x-2x^2} \cdot \frac{(x+1)}{(x+1)} \rightarrow \frac{2x^3+9x^2+10x+3}{-2x-2x^2} \cdot \frac{(x+1)}{(x+1)}$$

$$D_f = \mathbb{R} - \left\{ -\frac{3}{2}, -\frac{1}{2}, \frac{1}{2} \right\}$$

$$\frac{(2x+1)(x+3)(x+1)}{-\frac{1}{2} \quad -3 \quad -1}$$

الف)

$$\frac{x+3}{x^3-2x^2+2x-1}$$

$$\frac{x^3-2x^2+2x-1}{-x^2+x} \cdot \frac{(x-1)}{(x-1)} \rightarrow \frac{x^3-2x^2+2x-1}{-x^2+x} \cdot \frac{(x-1)}{(x-1)}$$

$$D_f = \mathbb{R} - \{1\}$$

$$\frac{(x+3)}{x^3-2x^2+2x-1} \rightarrow \frac{(x+3)}{x^3-2x^2+2x-1} \cdot \frac{(x-1)}{(x-1)} \rightarrow \frac{(x+3)(x-1)}{x^3-2x^2+2x-1}$$

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

$$x+3 \rightarrow x^3-2x^2+2x-1 \rightarrow (x-1)(x^2-x-1)$$

$$x^3-(x^2-1)-2x+1 \rightarrow x^3-x^2+1-2x+1 \rightarrow x^3-x^2-2x+2$$

$$x-1 \rightarrow x+3x \quad x(x+3) \quad \therefore -3 \rightarrow \mathbb{R} - \{-3, 0, 2, \infty\}$$

$$D_f = \mathbb{R}$$

$$\mathbb{R} - \{[-1, 0) \cup [3, \infty)\}$$

$$[x] - 2[x] - 3 \neq 0 \quad [x] = t \quad t^2 - 2t - 3 \neq 0 \quad [x] = -1 \quad [x] = 3$$

$$\text{الف) } \sqrt{\left[x - \frac{1}{x}\right] + \left[x + \frac{1}{x}\right]} \rightarrow \left[x - \frac{1}{x}\right] + \left[x - \frac{1}{x} + \frac{1}{x}\right] \geq 0 \quad (5)$$

$$x \left[x - \frac{1}{x}\right] \geq -\frac{1}{x} \quad \text{از این معادله} \quad \left[x - \frac{1}{x}\right] \geq \frac{1}{x} \quad D_f = \left[\frac{1}{x}, \infty\right)$$

$$\text{ب) } \sqrt{\left[x - \frac{1}{x}\right] + \left[\frac{1}{x} - x\right]} \rightarrow [x] + [-x] \quad \begin{matrix} Z \rightarrow 0 \\ Z \neq \rightarrow -1 \text{ و } 1 \end{matrix} \quad x - \frac{1}{x} \in Z$$

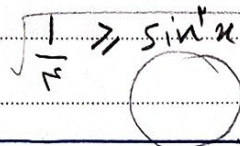
$$D_f = \{x \mid x = k + \frac{1}{x}, k \in Z\}$$

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



$$\tan x + 1 \neq 0 \quad D_f = R - \left\{k\pi, k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{4}, k\pi + \frac{7\pi}{4}\right\}$$

$$\text{ب) } \sqrt{1 - x \sin^2 x}$$



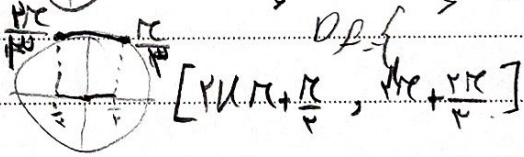
$$\frac{1}{x} \geq |\sin x| \quad \frac{1}{x} \geq \sin x \quad \frac{1}{x} \leq \sin x$$

$$\text{الف) } y = \sqrt{x \sin x - 1}$$

$$x \sin x \geq \frac{1}{x} \quad \left[\frac{\pi}{2}, \frac{3\pi}{2}\right] \quad \left[\frac{\pi}{2}, \frac{3\pi}{2}\right] \quad D_f = \left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$$

$$\text{ب) } \sqrt{1 - x \cos x}$$

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



$$\text{الف) } y = \arcsin(x^2 + 3x + 1) \quad -1 \leq x^2 + 3x + 1 \leq 1$$

$$\begin{matrix} -1 & 0 & 1 \\ | & - & | \\ x^2 + 3x + 1 & & x^2 + 3x + 1 \end{matrix} \quad \begin{matrix} -1 & 0 & 1 \\ | & - & | \\ x^2 + 3x + 1 & & x^2 + 3x + 1 \end{matrix} \quad \begin{matrix} -1 & 0 & 1 \\ | & - & | \\ x^2 + 3x + 1 & & x^2 + 3x + 1 \end{matrix}$$

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

$$\text{ب) } \cos y = \sqrt{a - 2x} \quad 1 \geq a - 2x \geq 0 \rightarrow x \geq \frac{a}{2}$$

$$a - 2x \geq 0 \quad \frac{a}{2} \geq x \quad D_f = \frac{a}{2} \leq x \leq \frac{a}{2}$$

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$$y = \log_2 \left(\frac{1 - \log_2^x}{1 - \log_2^x} \right) \quad x > 0$$

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$$x > 1 \rightarrow \log_2^x > 1$$

$$0 < x < 1$$

$$y = \log_2 \left(\frac{1 - \log_2^x}{1 - \log_2^x} \right)$$

$$x > 0$$

$$1 > \log_2^x \rightarrow \frac{1}{2} < x \quad \left(\frac{1}{2}, \infty \right)$$

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

$$2^{x-x^2} \geq 1 \quad x-x^2 \geq 0$$

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$$D_f = [1, 3]$$

$$(x-3)(x-1)$$

$$-x + x^2 - 3 \geq 0$$

$$x^2 - x - 3 \geq 0 \quad [1, 3]$$

$$y = \left(\frac{3x+5}{2x+2} \right)$$

$$0, 1, 2, 3, \dots$$

$$\frac{3x+5}{2x+2} = n$$

باری می بیند

$$D = \left\{ \frac{3n-5}{2-2n} \mid n = 0, 1, 2, \dots \right\}$$

$$x = \frac{3n-5}{2-2n}$$