

شماره ۱۹۷۵ آفرین

الف) $y = \frac{x^2 + x}{x^2 + x - 1}$ $\Rightarrow x^2 + x - 1 \neq 0$
 $\Rightarrow (x+1)(x^2 + x - 1) \Rightarrow x \neq -1, \frac{1}{2} \Rightarrow D_f = \mathbb{R} - \{-1, \frac{1}{2}\}$

ب) $y = \frac{x + c}{x^2 - 9x^2 + 10x + c}$ $\Rightarrow x^2 - 9x^2 + 10x + c \neq 0$
 $\Rightarrow (x+1)(x^2 + 10x + c) \Rightarrow x \neq -1, \frac{1}{2} \Rightarrow D_f = \mathbb{R} - \{-1, \frac{1}{2}\}$

ج) $y = \frac{x + c}{x^2 - 2x^2 + 2x - 1}$ $\Rightarrow x^2 - 2x^2 + 2x - 1 \neq 0$
 $\Rightarrow (x-1)(x^2 - x + 1) \neq 0 \Rightarrow x \neq 1 \Rightarrow D_f = \mathbb{R} - \{1\}$

د) $y = \sqrt{\frac{x + c}{x^2 - 2x^2 + 2x - 1}}$ $\Rightarrow \frac{-\infty}{+} \frac{-c}{0} \frac{1}{-} \frac{+\infty}{0} \Rightarrow D_f = (-\infty, \frac{1}{2}) \cup (\frac{1}{2}, +\infty)$

$x^2 - 2x + 1 - 2x + c \neq 0 \xrightarrow{x \geq 1} x^2 - 4x + 1 \neq 0 \Rightarrow x \neq 2, 1$
 $\xrightarrow{x < 1} x^2 + c \neq 0 \Rightarrow x \neq 0, -c \Rightarrow D_f = \mathbb{R} - \{2, 1, 0, -c\}$

ه) $y = \sqrt{[-x] + 2} \Rightarrow [-x] \geq -2 \Rightarrow x \leq -2 \Rightarrow D_f = (-\infty, -2]$

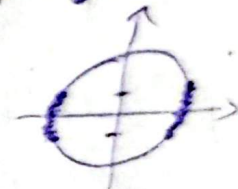
و) $\frac{2x^2 + 4}{[x]^2 - 2[x] - c} = y \Rightarrow [x]^2 - 2[x] - c \neq 0 \Rightarrow ([x] - c)([x] + 1) \neq 0$
 $\Rightarrow [x] \neq c, x \neq [c, c+1)$
 $\Rightarrow [x] \neq -1, x \neq (-2, -1] \Rightarrow D_f = \mathbb{R} - \{c, -1, -2, -1\}$

ز) $y = \sqrt{[x - \frac{1}{2}] + [x + \frac{1}{2}]} \Rightarrow [x - \frac{1}{2}] + [x + \frac{1}{2}] \geq 0$
 $\textcircled{1} \rightarrow [\frac{1}{2}, +\infty)$
 $\textcircled{2} \rightarrow [-\frac{1}{2}, \frac{1}{2}) \rightarrow \emptyset \Rightarrow D_f = [\frac{1}{2}, +\infty)$

ح) $y = \sqrt{[x - \frac{1}{2}] + [\frac{1}{2} - x]} \Rightarrow [x - \frac{1}{2}] + [\frac{1}{2} - x] \geq 0$
 $\Rightarrow x - \frac{1}{2} \in \mathbb{Z} \Rightarrow x \in \mathbb{Z} + \frac{1}{2}$
 $\Rightarrow D_f = \{x \mid x = k + \frac{1}{2}, k \in \mathbb{Z}\}$

$$c) y = \frac{\cos x + 1}{\tan x + 1} \rightarrow \tan x \neq -1 \Rightarrow x \neq k\pi - \frac{\pi}{4} \Rightarrow D_f = \mathbb{R} \setminus \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{4} \right\} \quad -4$$

$$\rightarrow y = \sqrt{1 - 2\sin^2 x} \Rightarrow -1 \leq \sin^2 x \leq 1 \Rightarrow \sin^2 x \leq 1 \Rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$$



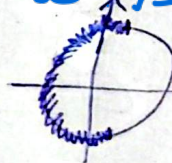
$$\Rightarrow D_f = \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right]$$

$$c) \sqrt{2\sin x - 1} \Rightarrow \sin x \geq \frac{1}{2} \rightarrow$$



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

$$\rightarrow \sqrt{1 - 2\cos x} \Rightarrow \cos x \leq \frac{1}{2} \rightarrow$$



$$\Rightarrow D_f = \left[2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3} \right]$$

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1, 1, 1, 1

$$c) -1 \leq x^2 + 2x + 1 \leq 1 \Rightarrow \begin{cases} x^2 + 2x \leq 0 \rightarrow \frac{-2}{-1} \leq x \leq \frac{0}{1} \\ x^2 + 2x + 2 \geq 0 \rightarrow \frac{-2}{2} \leq x \leq \frac{-1}{1} \end{cases} \Rightarrow D_f = [-2, -1] \cup [0, 1] \quad -1$$

$$\rightarrow \sqrt{a - 2x} \leq 1 \Rightarrow 0 \leq a - 2x \leq 1 \Rightarrow a \geq 2x \geq 2 \Rightarrow 2 \leq x \leq \frac{a}{2} \Rightarrow D_f = \left[2, \frac{a}{2} \right]$$

$$v - \frac{1}{r} > 0 \Rightarrow \sin \alpha \leq \frac{1}{r}$$



$$\rightarrow Df = [r \cos \alpha + \frac{r}{r}, r \sin \alpha + \frac{r}{r}]$$

$$a) \alpha > 0$$

$$1 - \log \frac{r}{c} > 0 \Rightarrow \log \frac{r}{c} < 1 \Rightarrow r < c \quad \left\{ \rightarrow Df = (0, c) \right.$$

$$\rightarrow) \alpha > 0$$

$$1 - \log \frac{r}{\frac{1}{r}} > 0 \Rightarrow \log \frac{r}{\frac{1}{r}} < 1 \Rightarrow r > \frac{1}{r} \quad \left\{ \rightarrow Df = (1, \infty) \right.$$

$$a) r^m - r^r - 1 \geq 0 \Rightarrow r^{-m+r} \geq 1 \Rightarrow -m+r \geq 0 \Rightarrow -m+r-c \geq 0$$

$$\begin{array}{c} 1 \quad c \\ - \quad - \\ \hline 0 \quad 0 \end{array}$$

$$\Rightarrow Df = [1, c]$$

$$\therefore) \left(\frac{c \cdot m \cdot d}{r \cdot m + r} \right) \leq y \Rightarrow \frac{c \cdot m \cdot d}{r \cdot m + r} \leq W \Rightarrow r \leq \frac{r \cdot W - d}{r \cdot W - c}$$

$$\Rightarrow Df = \left\{ r \mid r \leq \frac{r \cdot W - d}{r \cdot W - c}, r \in W \right\}$$