

الف) $y = \frac{x(x^2-4)}{x(x^2-1)} \geq 0$ $\rightarrow$ $\frac{-1}{-1} + \frac{0}{-1} + \frac{1}{-1} + \frac{4}{-1} =$ $D_f = (-1, 0) \cup (0, 1) \cup [4, +\infty)$

ب) $\frac{x^2(x^2-1)}{x(x^2-1)} \geq 0$ $\rightarrow$ $\frac{-1}{+1} + \frac{0}{+1} + \frac{1}{+1} =$ $D_f = \mathbb{R} - \{-1, 0, 1\}$

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

الف) $x + |x| \geq 0 \rightarrow \begin{matrix} (+) \checkmark \\ (-) \times \\ (0) \times \end{matrix} D_f = \mathbb{R}^+ \leq x \geq 0 \leq (+\infty)$

ب) $x|x| \geq 0 \rightarrow \begin{matrix} (+) \checkmark \\ (-) \times \\ (0) \times \end{matrix} D_f = \mathbb{R}^+ \leq x \geq 0 \leq (+\infty)$

الف) $2 - [x] \geq 0 \rightarrow [x] \leq 2 \rightarrow (-\infty, 3)$

ب) $2 - [x] > 0 \rightarrow [x] < 2 \rightarrow (-\infty, 2)$

الف) $y = \sqrt{[x - \frac{1}{4}] + [x + \frac{1}{4}]} \rightarrow 1 + [x - \frac{1}{4}] + [x + \frac{1}{4}] \geq 1$

$2[x + \frac{1}{4}] \geq 1 \rightarrow [x + \frac{1}{4}] \geq \frac{1}{2} \xrightarrow{\frac{1}{4} \text{ به } x} x + \frac{1}{4} \geq 1 \rightarrow x \geq \frac{3}{4}$

$D_f = [\frac{3}{4}, +\infty)$

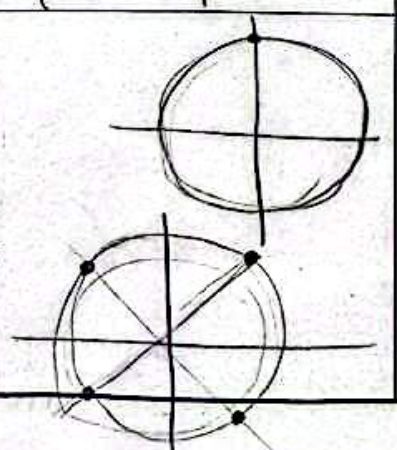
ب) $[x - \frac{1}{4}] + [-(x - \frac{1}{4})] \geq 0 \rightarrow x - \frac{1}{4} \in \mathbb{Z} \Rightarrow 0$

$\Rightarrow x - \frac{1}{4} \notin \mathbb{Z} \Rightarrow -1$ $D_f = \{x | x = k + \frac{1}{4}, k \in \mathbb{Z}\}$

الف) $\sin x - 1 \neq 0 \rightarrow \sin x \neq 1 \rightarrow \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$

ب) $2\sin^2 x - 1 \neq 0 \rightarrow \sin^2 x \neq \frac{1}{2} \rightarrow \sin x \neq \pm \frac{1}{\sqrt{2}}$

$D_f = \mathbb{R} - \{k\frac{\pi}{4} + \frac{\pi}{4}\}$

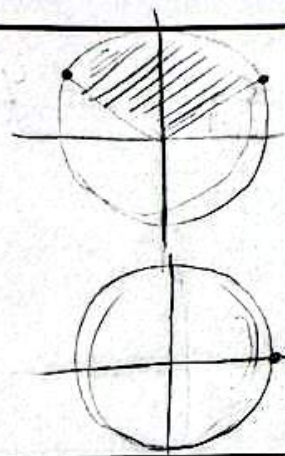


الف) $\rho \sin n - 1 \geq 0 \rightarrow \rho \sin n \geq 1 \rightarrow \sin n \geq \frac{1}{\rho}$

$$Df = [r_{km} + \frac{m}{q}, \underbrace{r_{km} + 1 - \frac{m}{q}}_{= r_{km} + 0 \frac{m}{q}}]$$

→ $\cos n-1 \gg 0 \rightarrow \cos n \gg 1$

از یک بنزینیت به فیلد برابر $D_f = \{1 \text{ km}\}$



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(الف) $-1 \leq x \leq 3 \rightarrow 2 \leq x \leq 4$

$$Df = [-\kappa, -r] \cup [r, \kappa]$$

$$\downarrow -r \geq x \geq -r$$

$$\begin{matrix} (-1) & (-r) \\ \uparrow & \nearrow \\ (n+1) & (n+r) \end{matrix}$$

$$\Rightarrow -1 \leq x^{r_n+1} \leq 1 \rightarrow -1 \leq x^{r_n+1} - x^{r_{n+1}+1} \leq 0 \quad (1)^v$$

$\begin{array}{c|ccc} & -1 & -1 & \\ \hline & 1 & 0 & -1 \end{array}$
 $\begin{array}{c|ccc} & -1 & 0 & \\ \hline & 1 & 0 & -1 \end{array}$
 $\rightarrow 1 \gg n+1 \rightarrow$
 $\begin{array}{c|ccc} & -1 & -1 & -1 \\ \hline & 1 & 0 & -1 \end{array}$
 $D_f = [-1, -1] \cup [-1, 0]$

الف) $r - \log_r(n-r) \geq 0$

$$x - 2 > 0 \rightarrow \underline{x > 2}$$

$$\log_p^{n-r} \nmid r \rightarrow n-r \nmid 9 \rightarrow \underline{n \nmid 11}$$

$$Df = (r, 11)$$

—A—

$$\therefore) \quad x^k - n > 0 \rightarrow x(n^{\frac{1}{k}} - 1) > 0$$

$$\frac{-1 \quad 0 \quad 1}{- \quad + \quad - \quad +} \quad D_f = (-1, 0) \cup (1, +\infty)$$

الف) $x^n + 1 \neq 0 \rightarrow x^n \neq -1$ هذا هو المطلوب $\rightarrow D_f = \mathbb{R}$

—) $r^n - 1 \neq 0 \rightarrow r^n \neq 1 \rightarrow n \neq 0 \rightarrow Df = \mathbb{R} - \{0\}$

$$e) r^n - r \neq 0 \rightarrow r^n \neq r \rightarrow (r^r)^n \neq r^r \rightarrow r^n \neq 1 \rightarrow n \neq \frac{1}{r} \rightarrow 0 \notin \mathbb{R} - \left\{ \frac{1}{r} \right\}^9$$

c) $r^n - r \neq 0 \rightarrow r^n \neq r \rightarrow n = \log_r r \rightarrow Df = \mathbb{R} - \{\log_r r\}$

الف) $r_{n+1} \in W \rightarrow r_n \in W-1 \rightarrow n \in \frac{W-1}{r}$

$$Df = \{x \mid x = \frac{k-1}{r}, k \in \omega\}$$

$$\therefore \frac{r_X - r}{r_X - 0} \in W$$

$$\rightarrow x = -\frac{-\partial W + P}{rW - \mu} \Rightarrow \frac{\partial W - P}{rW - \mu} = \frac{\gamma}{r}$$

$$D_f = \{n \mid n = \frac{\delta k - r}{rk - r}, k \in \mathbb{N}\}$$

1.