

الف) $\sqrt{\frac{x^2-4}{x^2-x}} \rightarrow \frac{x^2-4}{x^2-x} \geq 0 \rightarrow \frac{(x-2)(x+2)}{x(x-1)} \geq 0$

ب) $\sqrt{\frac{x^2-4}{x^2-x}} \rightarrow \frac{x^2-4}{x^2-x} \geq 0 \rightarrow \frac{(x-2)(x+2)}{x(x-1)} \geq 0$

نمودار: $\frac{-1}{-} \frac{0}{+} \frac{1}{+} \frac{2}{-}$ $D_f = (-1, 0) \cup (0, 1) \cup [2, \infty)$

نمودار: $\frac{-1}{+} \frac{0}{+} \frac{1}{+} \frac{2}{+}$ $D_f = \mathbb{R} - \{0, 1\}$

الف) $\frac{x+1}{\sqrt{x+|x|}} \rightarrow x+|x| > 0 \Rightarrow x > 0 \Rightarrow D_f = \mathbb{R}^+$

ب) $\frac{1}{\sqrt{x+|x|}} \rightarrow x+|x| > 0 \Rightarrow x > 0 \Rightarrow D_f = \mathbb{R}^+$

الف) $\sqrt{2-[x]} \rightarrow 2-[x] \geq 0 \Rightarrow 2 \geq [x] \Rightarrow D_f = (-\infty, 2)$

ب) $\frac{1}{\sqrt{2-[x]}} \rightarrow 2-[x] > 0 \Rightarrow 2 > [x] \Rightarrow D_f = (-\infty, 2)$

الف) $[x - \frac{1}{2}] + [x + \frac{1}{2}] \geq 0 \Rightarrow [x - \frac{1}{2}] + 1 + [x + \frac{1}{2}] \geq 1 \Rightarrow 2[x + \frac{1}{2}] \geq 1 \Rightarrow [x + \frac{1}{2}] \geq \frac{1}{2}$

چون $\frac{1}{2}$ برابر با $\frac{1}{2}$ باشد

ب) $[x - \frac{1}{2}] + [x + \frac{1}{2}] \geq 0 \Rightarrow x \geq \frac{1}{2} \Rightarrow D_f = [\frac{1}{2}, +\infty)$

الف) $[x - \frac{1}{2}] + [-x - \frac{1}{2}] \geq 0 \Rightarrow [x - \frac{1}{2}] + [-x - \frac{1}{2}] \geq 0 \Rightarrow [x - \frac{1}{2}] + [-x - \frac{1}{2}] \geq 0$

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$D_f = \{x \mid x = k + \frac{1}{2}, k \in \mathbb{Z}\}$

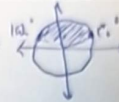
الف) $y = \frac{2}{\sin x - 1} \rightarrow \sin x \neq 1 \Rightarrow x \neq 2\pi \leq \frac{\pi}{2} \Rightarrow D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$

ب) $y = \frac{3}{2\sin^2 x - 1} \rightarrow 2\sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{2} \Rightarrow \sin x \neq \pm \frac{1}{\sqrt{2}} \Rightarrow \sin x \neq \frac{1}{\sqrt{2}}, \frac{-1}{\sqrt{2}}$

$x \neq 45^\circ, 135^\circ, 225^\circ, 315^\circ$

$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}\}$

$$a) y = \sqrt{x \sin x - 1} \Rightarrow x \sin x - 1 \geq 0 \Rightarrow x \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{x} \rightarrow$$



$$D_f = \left[2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4} \right]$$

$$b) y = \sqrt{\cos x - 1} \Rightarrow \cos x - 1 \geq 0 \Rightarrow \cos x \geq 1 \Rightarrow \text{نقطه } 0^\circ$$

$$D_f = \{ 2k\pi \}$$

$$a) \cos y = |x| - r \Rightarrow -1 \leq |x| - r \leq 1 \Rightarrow -r \leq |x| \leq r \Rightarrow D_f = [-r, -r] \cup [r, r]$$

$$b) y = \arcsin(x^2 + 2x + 1) \Rightarrow -1 \leq x^2 + 2x + 1 \leq 1 \Rightarrow 0 \leq x^2 + 2x \leq 0 \Rightarrow x(x+2) \leq 0$$

① $x(x+2) \leq 0 \Rightarrow x \in [-2, 0]$

② $x(x+2) \geq 0 \Rightarrow x \in (-\infty, -2] \cup [0, \infty)$

③ $x(x+2) \leq 0 \Rightarrow x \in [-2, 0]$

④ $x(x+2) \geq 0 \Rightarrow x \in (-\infty, -2] \cup [0, \infty)$

$$a) y = \log_{x-1} x \Rightarrow x-1 > 0 \Rightarrow x > 1$$

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$$D_f = (1, 11]$$

$$b) y = \log(x^2 - x) \Rightarrow x(x-1) > 0 \Rightarrow x < 0 \text{ or } x > 1 \Rightarrow D_f = (-\infty, 0) \cup (1, \infty)$$

$$a) y = \frac{x}{x+1} \Rightarrow x > 0 \Rightarrow D_f = \mathbb{R}$$

$$b) y = \frac{x}{x^2 - 1} \Rightarrow x \neq 1 \Rightarrow x \neq 0 \Rightarrow D_f = \mathbb{R} - \{0\}$$

$$c) y = \frac{x}{x^2 - 1} \Rightarrow x \neq 1 \Rightarrow x \neq \frac{1}{x} \Rightarrow D_f = \mathbb{R} - \left\{ \frac{1}{x} \right\} \subseteq \mathbb{R} - \left\{ \log \frac{1}{x} \right\}$$

$$d) y = \frac{x}{x^2 - 1} \Rightarrow x \neq 1 \Rightarrow \log \frac{x}{x^2 - 1} \neq x \Rightarrow D_f = \mathbb{R} - \left\{ \log \frac{x}{x^2 - 1} \right\}$$

$$a) (x+1)! \Rightarrow x+1 \in \mathbb{W} \Rightarrow \frac{x+1}{x} = n \Rightarrow D_f = \left\{ x \mid x = \frac{k-1}{x}, k \in \mathbb{W} \right\}$$

$$b) \left(\frac{x^2 - 1}{x} \right)! \Rightarrow \frac{x^2 - 1}{x} \in \mathbb{W} \Rightarrow \frac{x^2 - 1}{x} = n \Rightarrow \frac{x^2 - 1}{x} = n$$

$$D_f = \left\{ x \mid x = \frac{2k-1}{2k-1}, k \in \mathbb{W} \right\}$$