

$$\text{الف) } x^2 - 2x + 4 > 0$$

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

③ ②

$$\text{ب) } x^2 - 4x + 4 < 0$$

$$(x - 2)(x - 2)$$

② ①

$$\text{ج) } x^2 + 4x - 4 \geq 0$$

$$(x + 1)(x + 4)$$

① ④

$$\text{د) } x^2 - 5x + 4 \leq 0$$

$$(x - 4)(x - 1)$$

④ ②

$$\begin{array}{c} x \quad x \\ + \quad - \quad + \\ \text{ع.ر} \quad \text{ع.ر} \end{array}$$

$$\begin{array}{c} 1 \quad 4 \\ + \quad - \quad + \\ \text{ع.ر} \end{array}$$

$$\begin{array}{c} -4 \quad -1 \\ + \quad - \quad + \\ \text{ع.ر} \quad \text{ع.ر} \end{array}$$

$$\begin{array}{c} 1 \quad 4 \\ + \quad - \quad + \\ \text{ع.ر} \end{array}$$

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

$$D_f = (1, 2)$$

$$D_f = [-1, -4] \cup [1, +\infty)$$

$$D_f = [1, 4]$$

$n(n-1)$

الف) $\frac{n^2 - 2n + 2}{n-1} < 0$

$D_f = (-\infty, 1) \cup [2, \infty)$

$(n-1)(n+1)$

ب) $\frac{n^2 - 1}{n^2 - 4n + 4}$

$D_f = (-\infty, -1) \cup (-1, 1) \cup (4, +\infty)$

الف) $\frac{n^2 - 1}{n^2 - n}$

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

$n(n^2 - 1) = 0 \Rightarrow n = -1$

ب) $y = \frac{n^2 - 14}{n^2 - 5n + 4}$

$D_f = (-\infty, -4] \cup [1, 4] \cup (4, +\infty)$

الف) $y = \sqrt{4 - \sqrt{2-n}} \Rightarrow D_f = [2, 14]$

$\Rightarrow \begin{cases} 2 \leq n \leq 14 \end{cases}$

$\sqrt{2-n} \geq 0 \Rightarrow 2-n \geq 0 \Rightarrow n \leq 2$

ب) $y = \sqrt{2 - \sqrt{n-2}} \Rightarrow D_f = [11, 2]$

$\Rightarrow \begin{cases} 11 \geq n \geq 2 \end{cases}$

$\sqrt{n-2} \geq 0 \Rightarrow n-2 \geq 0 \Rightarrow n \geq 2$

الف) $y = \sqrt{4 - 2x^2}$ $\rightarrow 4 - 2x^2 \geq 0 \rightarrow 2 > 2x^2 \rightarrow 1 > x^2 \rightarrow \boxed{x \leq 1}$ -6

ب) ~~$y = \sqrt{3|x| - 9}$~~ $y = \sqrt{3|x| - 9} \rightarrow 3|x| - 9 \geq 0 \rightarrow 3|x| \geq 9$
 $\rightarrow |x| \geq 3 \rightarrow \boxed{x \leq -3}$

الن) $\sqrt[3]{\frac{|x|+1}{|x-3|}} \rightarrow \text{معرّف}$ $D_f = \mathbb{R} - \{3\}$ -1
 $\sqrt[3]{\frac{|x|+1}{|x-3|}} \neq 0 \rightarrow \text{معرّف}$
 $\boxed{x \neq 3}$

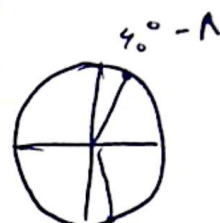
ب) $\sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \rightarrow \text{معرّف}$ $D_f = \mathbb{R} - \{9\}$
 $\sqrt{x} - 3 \neq 0 \Rightarrow \frac{9}{-3} \neq 3$

$\sqrt{x} \neq 3 \rightarrow \boxed{x \neq 9}$ ج.؟

$$\text{Case 1 } y = \frac{\sin u}{r \cos u - 1} \neq 0$$

$$r \cos u \neq 1 \rightarrow \cos u \neq \frac{1}{r}$$

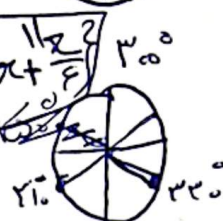
$$D_f = \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{3} \right\}$$



$$\text{Case 2 } y = \frac{\cos u + 1}{r \sin u + 1} \neq 0$$

$$\rightarrow \sin u \neq -\frac{1}{r}$$

$$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$$



$$\text{Case 3 } y = \tan u + r$$

$$\cot u - r \neq 0$$

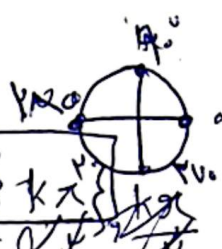
$$\cot u \neq r$$

$$\frac{\cos u}{\sin u} \neq r$$

$$\sin u \neq \frac{\cos u}{r}$$

$$\cos u \neq 0$$

$$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$$



$$\text{Case 4 } y = \frac{\sin u}{\epsilon \sin^2 u - r}$$

$$\epsilon \sin^2 u - r \neq 0$$

$$\epsilon \sin^2 u \neq r$$

$$D_f = \mathbb{R} - \left\{ \frac{\pi}{2} + k\pi, \frac{3\pi}{2} + k\pi \right\}$$



$$y = \frac{\sqrt{r^2 - 1} - \frac{1}{r}}{\frac{r}{\epsilon} - \frac{1}{r}} \rightarrow r^2 - 1 - \frac{1}{r^2} > 0 \rightarrow r^2 - 1 > \frac{1}{r^2} \rightarrow |r - 1| > \frac{1}{r}$$

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

$$\text{Case 5 } y = \sqrt{\epsilon - r|m|}$$

$$\epsilon - r|m| > 0 \rightarrow r < \frac{\epsilon}{|m|}$$

$$\text{Case 6 } \epsilon > r|m| \rightarrow r > \frac{\epsilon}{|m|}$$

$$D_f = (-\infty, -r] \cup [r, +\infty)$$

$$\text{Case 7 } y = \sqrt{\frac{|a|}{|a| + 1}} \rightarrow \text{Case 8 } y = \sqrt{\frac{|a|}{|a| + 1}}$$

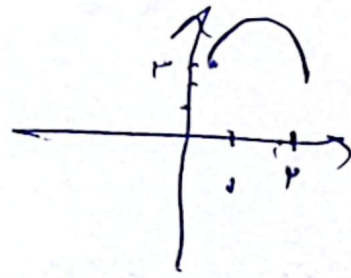
$$|a| \neq 0$$

$$D_f = \mathbb{R} - \{0\}$$

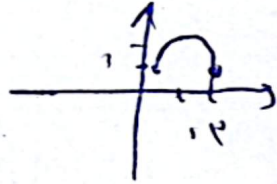
استيعاب

-1

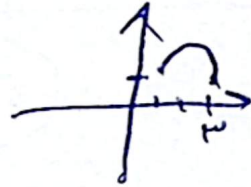
الف) $f(n) + 2$



ب) $f(n)$



ج) $f(n-1)$



د) $f(n)$

