



الف) $x^2 - 8x + 6 > 0 \rightarrow (x-2)(x-3) > 0 \rightarrow$

x	2	3
y	+	-

 $x = (3, +\infty) \cup (-\infty, 2)$

ب) $x^2 - 6x + 8 < 0 \rightarrow (x-2)(x-4) < 0 \rightarrow$

x	2	4
y	+	-

 $x = (2, 4)$

ج) $x^2 + 6x + 8 > 0 \rightarrow (x+1)(x+8) > 0 \rightarrow$

x	-1	-8
y	+	-

 $x = (-\infty, -1] \cup [-8, +\infty)$

د) $x^2 - 7x + 6 < 0 \rightarrow (x-1)(x-6) < 0 \rightarrow$

x	1	6
y	+	-

 $x = (1, 6)$

الف) $\frac{x^2 - 2x + 2}{x-5} < 0 \rightarrow \frac{(x-1)(x-1)}{x-5} < 0 \rightarrow$

x	1	5
y	-	+

 $x = (-\infty, 1) \cup (5, +\infty)$

ب) $\frac{x^2 - 1}{x^2 - 6x + 8} \geq 0 \rightarrow \frac{(x-1)(x+1)}{(x-2)(x-4)} \geq 0 \rightarrow$

x	-1	2	4
y	+	-	+

 $x = (-\infty, -1] \cup (2, 4) \cup (4, +\infty)$

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \rightarrow y = \sqrt{\frac{(x-1)(x+1)}{x(x-1)(x+1)}} \rightarrow$

x	-1	0	1
y	+	-	+

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

ب) $y = \sqrt{\frac{x^2 - 16}{x^2 - 8x + 12}} \rightarrow y = \sqrt{\frac{(x-4)(x+4)}{(x-2)(x-6)}} \rightarrow$

x	-4	2	6
y	+	-	+

 $D_f = (-\infty, -4] \cup (2, 6) \cup (6, +\infty)$

الف) $y = \sqrt{4 - 2x^2} \rightarrow 4 - 2x^2 \geq 0 \rightarrow 2x^2 \leq 4 \rightarrow x^2 \leq 2 \rightarrow -\sqrt{2} \leq x \leq \sqrt{2} \quad D_f = [-\sqrt{2}, \sqrt{2}]$

ب) $y = \sqrt{4|x| - 9} \rightarrow 4|x| - 9 \geq 0 \rightarrow 4|x| \geq 9 \rightarrow |x| \geq \frac{9}{4} \rightarrow x \geq \frac{9}{4} \text{ or } x \leq -\frac{9}{4} \quad D_f = (-\infty, -\frac{9}{4}] \cup [\frac{9}{4}, +\infty)$

$$\text{الف) } y = \sqrt{4 - \sqrt{2-x}} \rightarrow 4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16 \rightarrow x \geq -14$$

$$4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16 \rightarrow x \geq -14$$

$$\rightarrow D_f = [-14, 2]$$

6 → Δ

$$\text{ب) } y = \sqrt{4 - \sqrt{2-x}} \rightarrow 2-x \geq 0 \rightarrow x \leq 2$$

$$4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16 \rightarrow x \geq -14$$

$$\rightarrow D_f = [-14, 2]$$

$$\text{الف) } y = \sqrt{\frac{|x|+1}{|x|-2}} \rightarrow |x|-2 \neq 0 \quad |x| \neq 2 \quad x \neq \pm 2 \rightarrow D_f = \mathbb{R} - \{-2, 2\}$$

7 ✓

$$\text{ب) } y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-2}} \rightarrow x \geq 0, \sqrt{x}-2 \neq 0 \rightarrow \sqrt{x} \neq 2 \quad x \neq 4$$

$$D_f = [0, +\infty) - \{4\}$$

$$\text{الف) } y = \frac{\sin x}{\cos x - 1} \rightarrow \cos x - 1 \neq 0 \rightarrow \cos x \neq 1 \rightarrow D_f = \mathbb{R} - \{k\pi\}$$

$$\text{ب) } y = \frac{\cos x + 1}{\sin x + 1} \rightarrow \sin x + 1 \neq 0 \quad \sin x \neq -1 \rightarrow D_f = \mathbb{R} - \{k\pi + \frac{3\pi}{2}, k\pi + \frac{5\pi}{2}\}$$

$$\text{ج) } y = \frac{\tan x + 1}{\cot x - 1} \rightarrow \cos x \neq 0, \sin x \neq 0, \cos x \neq \sin x \rightarrow D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}\}$$

$$\text{د) } y = \frac{\sin x + 1}{\sin^2 x - 2} \rightarrow \sin^2 x - 2 \neq 0 \rightarrow \sin^2 x \neq 2 \rightarrow \sin x \neq \pm \sqrt{2} \rightarrow D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$$

$$y = \frac{1}{\sqrt{|x-2| - \frac{1}{x}}} \rightarrow |x-2| - \frac{1}{x} > 0 \rightarrow |x-2| > \frac{1}{x}$$

$$\rightarrow |x-2| > \frac{1}{x} \rightarrow \begin{matrix} x-2 > \frac{1}{x} \\ x-2 < -\frac{1}{x} \end{matrix} \rightarrow \begin{matrix} x > \frac{9}{x} \\ x < \frac{9}{x} \end{matrix} \rightarrow D_f = (-\infty, \frac{9}{x}) \cup (\frac{9}{x}, +\infty)$$

$$\text{الف) } y = \sqrt{4 - 2|x|} \rightarrow 4 - 2|x| \geq 0 \rightarrow 2|x| \leq 4 \rightarrow |x| \leq 2 \rightarrow -2 \leq x \leq 2$$

$$D_f = [-2, 2]$$

$$\text{ب) } y = \sqrt{\frac{|x|}{|x|}} \rightarrow |x| \neq 0 \rightarrow x \neq 0$$

$$\frac{|x|}{|x|} \geq 0 \rightarrow \text{مستقيم برقرار است}$$

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