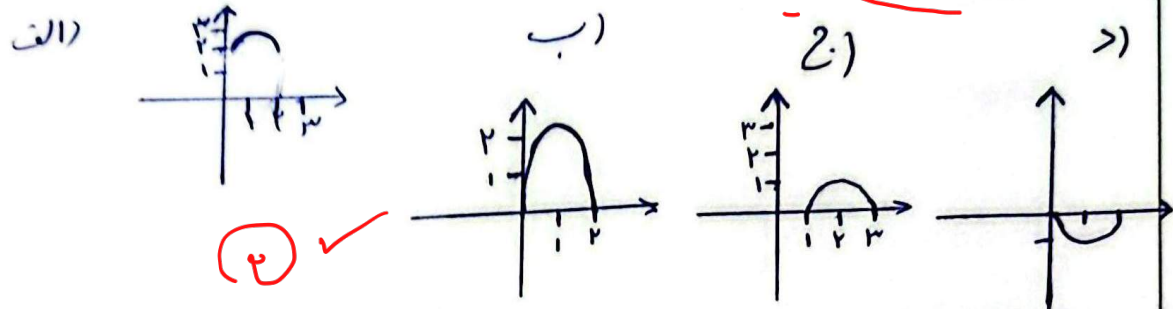




الف) $x^2 - 5x + 6 > 0 \Rightarrow (x-2)(x-3) > 0$ $\frac{x}{f(x)} \mid \begin{array}{c} 2 \\ + \end{array} \begin{array}{c} 3 \\ - \end{array} \Rightarrow (-\infty, 2) \cup (3, +\infty)$

ب) $x^2 - 2x + 5 < 0 \Rightarrow (x-1)(x-5) < 0$ $\frac{x}{f(x)} \mid \begin{array}{c} 1 \\ + \end{array} \begin{array}{c} 5 \\ - \end{array} \Rightarrow (1, 5)$

ج) $x^2 + 2x + 5 \geq 0 \Rightarrow (x+1)(x+5) \geq 0$ $\frac{x}{f(x)} \mid \begin{array}{c} -1 \\ + \end{array} \begin{array}{c} -5 \\ - \end{array} \Rightarrow (-\infty, -1] \cup [-5, +\infty)$

د) $x^2 - 7x + 6 \leq 0 \Rightarrow (x-2)(x-3) \leq 0$ $\frac{x}{f(x)} \mid \begin{array}{c} 2 \\ + \end{array} \begin{array}{c} 3 \\ - \end{array} \Rightarrow [2, 3]$

الف) $\frac{x^2 - 3x + 2}{x-5} < 0 \Rightarrow \frac{(x-1)(x-2)}{x-5} < 0 \Rightarrow \frac{x}{f(x)} \mid \begin{array}{c} 1 \\ - \end{array} \begin{array}{c} 2 \\ + \end{array} \begin{array}{c} 5 \\ - \end{array}$
 $(-\infty, 1) \cup (2, 5)$

ب) $\frac{x^2 - 1}{x^2 - 2x + 5} \geq 0 \Rightarrow \frac{(x-1)(x+1)}{(x-5)(x-1)} \geq 0 \Rightarrow \frac{x}{f(x)} \mid \begin{array}{c} -1 \\ + \end{array} \begin{array}{c} 1 \\ - \end{array} \begin{array}{c} 5 \\ - \end{array} \Rightarrow (-\infty, -1] \cup (5, +\infty)$

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} = \sqrt{\frac{(x-1)(x+1)}{x(x-1)}} \Rightarrow \frac{x}{f(x)} \mid \begin{array}{c} -1 \\ + \end{array} \begin{array}{c} 0 \\ - \end{array} \begin{array}{c} 1 \\ + \end{array}$

$D_f = \mathbb{R} - [-1, 0] - \{1\} \Rightarrow \mathbb{R} - [-1, 0] \cup \{1\}$

ب) $y = \sqrt{\frac{x^2 - 17}{x^2 - 5x + 6}} = \sqrt{\frac{(x-4)(x+4)}{(x-1)(x-6)}} \Rightarrow \frac{x}{f(x)} \mid \begin{array}{c} -4 \\ + \end{array} \begin{array}{c} 1 \\ - \end{array} \begin{array}{c} 6 \\ - \end{array}$
 $D_f = (-\infty, -4] \cup (1, 4) \cup (6, +\infty)$

الف) $y = \sqrt{2 - \sqrt{2-x}} \Rightarrow 2 - x \geq 0 \Rightarrow x \leq 2$

$2 - \sqrt{2-x} \geq 0 \Rightarrow 2 \geq \sqrt{2-x} \Rightarrow 4 \geq 2-x \Rightarrow x \geq -2$

$D_f = [-2, 2]$

ب) $y = \sqrt{3 - \sqrt{2x-2}} \Rightarrow x-2 \geq 0 \Rightarrow x \geq 2$

$3 - \sqrt{2x-2} \geq 0 \Rightarrow 3 \geq \sqrt{2x-2} \Rightarrow 9 \geq 2x-2 \Rightarrow x \leq 11$

$D_f = [2, 11]$

$$\text{الف) } y = \sqrt{4-x^2} \Rightarrow x^2 \leq 4 \Rightarrow x^2 \leq 2 \Rightarrow \begin{matrix} x \leq \sqrt{2} \\ x \geq -\sqrt{2} \end{matrix}$$

$$D_f = [-\sqrt{2}, \sqrt{2}]$$

$$\text{ب) } y = \sqrt{17|x|-9} \Rightarrow 17|x| \geq 9 \Rightarrow |x| \geq \frac{9}{17} \Rightarrow \begin{matrix} x \geq \frac{9}{17} \\ x \leq -\frac{9}{17} \end{matrix}$$

$$D_f = (-\infty, -\frac{9}{17}] \cup [\frac{9}{17}, +\infty)$$

② ✓

$$\text{الف) } y = \sqrt{\frac{|x+1|}{|x-3|}} \Rightarrow |x| \neq 3 \Rightarrow x \neq \{3, -3\} \Rightarrow D_f = \mathbb{R} - \{3, -3\}$$

$$\text{ب) } y = \sqrt{\frac{\sqrt{x+1}}{\sqrt{x}-3}} \rightarrow x \geq 0$$

② ✓

$$\sqrt{x} \neq 3 \Rightarrow x \neq 9 \Rightarrow D_f = [0, +\infty) - \{9\}$$

$$\text{الف) } y = \frac{\sin x}{2\cos x - 1} \Rightarrow \cos x \neq \frac{1}{2} \Rightarrow x \neq \{2k\pi \pm \frac{\pi}{3}\} \Rightarrow D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$$

$$\text{ب) } y = \frac{\cos x + 1}{2\sin x + 1} \Rightarrow \sin x \neq -\frac{1}{2} \Rightarrow D_f = \mathbb{R} - \{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$$

$$\text{ج) } y = \frac{\tan x + 2}{\cot x - 1} \Rightarrow \tan x = \frac{\sin x}{\cos x} \rightarrow \cos \neq 0 \rightarrow \text{ممنوع } x = \frac{\pi}{2}, \frac{3\pi}{2}$$

$$\cot x = \frac{\cos x}{\sin x} \neq 0 \rightarrow \sin x \neq 0 \rightarrow \text{ممنوع } x = k\pi$$

$$\Rightarrow y = \frac{\sin x + 1}{2\sin x - 3} \Rightarrow D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{3}\} \quad D_f = \mathbb{R} - \{k\frac{\pi}{2} + \frac{\pi}{2}, k\pi + \frac{\pi}{2}\}$$

② ✓

$$y = \frac{1}{\sqrt{2|x-2| - \frac{1}{2}}} \Rightarrow 2|x-2| > \frac{1}{2} \Rightarrow |x-2| > \frac{1}{4} \Rightarrow \begin{matrix} x > \frac{9}{4} \\ x < \frac{7}{4} \end{matrix}$$

$$D_f = \mathbb{R} - [\frac{7}{4}, \frac{9}{4}]$$

② ✓

$$\text{الف) } y = \sqrt{4-2|x|} \Rightarrow 2|x| \leq 4 \Rightarrow |x| \leq 2 \Rightarrow -2 \leq x \leq 2 \Rightarrow D_f = [-2, 2]$$

$$\text{ب) } y = \sqrt{\frac{|x|}{1+x}} \Rightarrow D_f = \mathbb{R} - \{0\}$$

② ✓