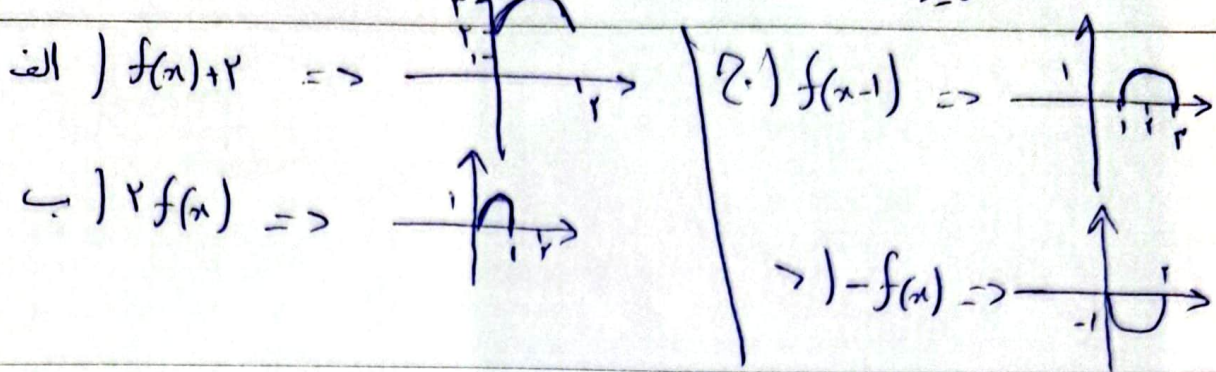




الف) $x^2 - 5x + 6 > 0 \Rightarrow \frac{1}{x^2 - 5x + 6} \rightarrow D_f = (-\infty, 2) \cup (3, \infty)$

ب) $x^2 - 4x + 5 < 0 \Rightarrow \frac{1}{x^2 - 4x + 5} \rightarrow D_f = (1, 5)$

ج) $x^2 + 4x + 5 > 0 \Rightarrow \frac{1}{x^2 + 4x + 5} \rightarrow D_f = (-\infty, -5] \cup [-1, \infty)$

د) $x^2 - 7x + 6 \leq 0 \Rightarrow \frac{1}{x^2 - 7x + 6} \rightarrow D_f = [2, 4]$

الف) $\frac{x^2 - 3x + 2}{x - 5} < 0 \Rightarrow \frac{1}{\frac{x^2 - 3x + 2}{x - 5}} \rightarrow D_f = (-\infty, 1) \cup (2, 5)$

ب) $\frac{x^2 - 1}{x^2 - 4x + 5} > 0 \Rightarrow \frac{1}{\frac{x^2 - 1}{x^2 - 4x + 5}} \rightarrow D_f = (-\infty, -1] \cup (5, \infty)$

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \Rightarrow \frac{x^2 - 1}{x^2 - x} > 0, x^2 - x \neq 0 \Rightarrow \frac{1}{\frac{x^2 - 1}{x^2 - x}} \rightarrow D_f = (0, 1) \cup (2, \infty)$

ب) $y = \sqrt{\frac{x^2 - 4}{x^2 - 5x + 4}} \Rightarrow \frac{x^2 - 4}{x^2 - 5x + 4} > 0, x^2 - 5x + 4 \neq 0 \Rightarrow \frac{1}{\frac{x^2 - 4}{x^2 - 5x + 4}} \rightarrow D_f = (-\infty, -4] \cup (1, 4) \cup (5, \infty)$

الف) $y = \sqrt{4 - \sqrt{2 - x}} \Rightarrow \begin{cases} 4 - x > 0 \\ 4 - \sqrt{2 - x} > 0 \end{cases} \Rightarrow \begin{cases} x < 4 \\ 4 > \sqrt{2 - x} \Rightarrow 16 > 2 - x \Rightarrow x > -14 \end{cases} \Rightarrow$

ب) $y = \sqrt{3 - \sqrt{x - 2}} \Rightarrow \begin{cases} x - 2 > 0 \\ 3 - \sqrt{x - 2} > 0 \end{cases} \Rightarrow \begin{cases} x > 2 \\ 3 > \sqrt{x - 2} \Rightarrow 9 > x - 2 \Rightarrow x < 11 \end{cases} \Rightarrow$

$\rightarrow 2 \leq x \leq 11 \rightarrow D_f = [2, 11]$

الف) $y = \sqrt{4-x^2} \Rightarrow 4-x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow x \leq \frac{4}{\sqrt{2}} \rightarrow D_f = (-\infty, \frac{4}{\sqrt{2}}]$

~~ب) $y = \sqrt{4-x^2} \Rightarrow 4-x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow x \leq \frac{4}{\sqrt{2}}$~~

ج) $y = \sqrt{3|x|-9} \Rightarrow 3|x| \geq 9 \Rightarrow |x| \geq 3 \Rightarrow \begin{cases} x \geq 3 \\ x \leq -3 \end{cases} \rightarrow D_f = (-\infty, -3] \cup [3, \infty)$

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

ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \Rightarrow \begin{cases} x \geq 0 \\ \sqrt{x}-3 > 0 \end{cases} \Rightarrow x > 9 \Rightarrow D_f = (9, \infty)$

الف) $y = \frac{\sin x}{\cos x - 1} \Rightarrow \cos x - 1 \neq 0 \Rightarrow \cos x \neq 1 \Rightarrow D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{2}\}$

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

ج) $y = \frac{\tan x + 1}{\cot x - 1} \Rightarrow \begin{cases} \cos x \neq 0 \\ \cot x - 1 \neq 0 \end{cases} \Rightarrow \cot x \neq 1 \Rightarrow D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}, k\pi, k\pi + \frac{\pi}{2}\}$

د) $y = \frac{\sin x + 1}{\sin x} \Rightarrow \sin x \neq 0 \Rightarrow \sin x \neq \frac{\sqrt{2}}{2} \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}\}$

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

$\Rightarrow \begin{cases} x-2 > \frac{1}{2} \Rightarrow x > \frac{5}{2} \\ x-2 < -\frac{1}{2} \Rightarrow x < \frac{3}{2} \end{cases} \Rightarrow D_f = (-\infty, \frac{3}{2}) \cup (\frac{5}{2}, \infty)$

الف) $y = \sqrt{4-|x|} \Rightarrow 4-|x| \geq 0 \Rightarrow |x| \leq 4 \Rightarrow -4 \leq x \leq 4 \Rightarrow D_f = [-4, 4]$

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