

الف) $y = \frac{x+3}{x^2+2x^2-11x+3} = \frac{x+3}{(x-1)(2x^2+5x-3)} = \frac{x+3}{(x-1)(2x-1)(x+3)}$

$$D_f = \mathbb{R} - \{3\} - \{\frac{1}{2}\} - \{1\}$$

ب) $y = \frac{x+3}{2x^2+2x^2+10x+3} = \frac{x+3}{(x+1)(2x^2+7x+3)} = \frac{x+3}{(x+1)(2x+1)(x+3)} \Rightarrow D_f = \mathbb{R} - \{-1\} - \{-\frac{1}{2}\} - \{-3\}$
 $D_f = \mathbb{R} - \{-1\} - \{-\frac{1}{2}\} - \{-3\}$

الف) $y = \frac{x+3}{x^2-2x^2+2x-1} = \frac{x+3}{(x-1)(x^2-x+1)}$
 $D_f = \mathbb{R} - \{1\}$

ب) $y = \sqrt{\frac{x+3}{(x-1)(x^2-x+1)}}$

$$y = \frac{1}{x^2-2x+1} \Rightarrow \frac{1}{(x-1)^2}$$

$$D_f = \mathbb{R} - \{1\}$$

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

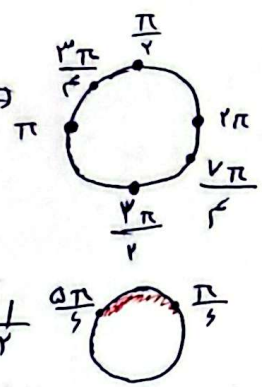
ب) $y = \frac{2x^2+6}{[x]^2-2[x]-2} \Rightarrow \frac{2x^2+6}{([x]-2)([x]+1)} \Rightarrow D_f = \mathbb{R} - \frac{2}{3}[2, 4) - [-1, 0)$

الف) $y = \sqrt{[n-\frac{1}{p}] + [n+\frac{1}{p}]} \Rightarrow \sqrt{[n+\frac{1}{p}-1] + [n+\frac{1}{p}]} \Rightarrow \sqrt{2[n+\frac{1}{p}]-1} \geq 0$
 $\Rightarrow [n+\frac{1}{p}] \geq \frac{1}{2} \Rightarrow n \geq \frac{1}{p} \Rightarrow D_f = [\frac{1}{p}, +\infty)$

ب) $y = \sqrt{[n-\frac{1}{p}] + [\frac{1}{p}-n]} \Rightarrow [n-\frac{1}{p}] + [-(n-\frac{1}{p})] \geq 0 \Rightarrow n - \frac{1}{p} \in \mathbb{Z}$
 $\Rightarrow D_f = \{n \mid n = k + \frac{1}{p}, k \in \mathbb{Z}\}$

الف) $y = \frac{\cot x + 1}{\tan x + 1} \Rightarrow \frac{\cot x}{\tan x} + 1 \neq 0 \Rightarrow \tan x \neq -1$ تعريف مستورد -6

$\Rightarrow Df = \mathbb{R} - \left\{ \frac{k\pi}{2} \right\} - \left\{ k\pi - \frac{\pi}{4} \right\}$



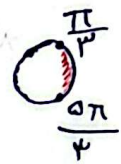
ب) $y = \sqrt{1 - r \sin^2 x} \Rightarrow 1 - r \sin^2 x \geq 0 \Rightarrow \sin^2 x \leq \frac{1}{r}$ -7

$\Rightarrow Df = \mathbb{R} - \left(2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2} \right)$

الف) $y = \sqrt{2 \sin x - 1} \Rightarrow 2 \sin x - 1 \geq 0 \Rightarrow \sin x \geq \frac{1}{2}$ -V

$Df = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$

ب) $y = \sqrt{1 - 2 \cos x} \Rightarrow 1 - 2 \cos x \geq 0 \Rightarrow \frac{1}{2} \geq \cos x$



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

الف) $y = \arcsin(x^2 + 3x + 1) \Rightarrow -1 \leq x^2 + 3x + 1 \leq 1 \Rightarrow -2 \leq x^2 + 3x \leq 0$ -A

$x^2 + 3x \leq 0 \Rightarrow x(x+3) \leq 0 \Rightarrow -3 \leq x \leq 0$ A

$x^2 + 3x \geq -2 \Rightarrow x^2 + 3x + 2 \geq 0 \Rightarrow (x+1)(x+2) \geq 0$ B

$A \cap B \Rightarrow Df = [-3, -2] \cup [-1, 0]$

ب) $\cos y = \sqrt{5 - 2x} \Rightarrow 0 \leq \sqrt{5 - 2x} \leq 1$

$\Rightarrow 0 \leq 5 - 2x \leq 1 \Rightarrow -5 \leq -2x \leq -4 \Rightarrow \frac{5}{2} \geq x \geq 2 \Rightarrow Df = \left[2, \frac{5}{2} \right]$

الف) $y = \log_r(1 - \log_p x)$ -9

$1 - \log_p x > 0 \Rightarrow \log_p x < 1 \Rightarrow x < p$

ب) $y = \log_r \left(\frac{1 - \log_p x}{r} \right)$ Df = (1/r, +infinity)

الف) $y = \sqrt{r^{x-n} - 1}$ -10

$\Rightarrow Df = [1, 3]$

ب) $y = \left(\frac{r^{n+a}}{r^{n+r}} \right) ! \Rightarrow \frac{r^{n+a}}{r^{n+r}} \in \mathbb{W} \Rightarrow r^{n+a} \in r^{n+r} \mathbb{W} \Rightarrow r^n - r^{n+r} \in r^a \mathbb{W}$

$Df = \{ n/n = \frac{r^k - a}{r - r^k} \mid k \in \mathbb{W} \} \Rightarrow n \in \frac{r^a \mathbb{W} - a}{r - r^k}$