

الف) $\frac{n+3}{2n^2+3n^2-11n+3} = \frac{n+3}{(2n^2+3n-3)(n-1)} \xrightarrow{\Delta < 0} 1$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = \mathbb{R} - \left\{ \frac{1}{2}, \frac{1}{3} \right\}$

ب) $\frac{n+3}{2n^2+9n^2+10n+3} = \frac{n+3}{(2n^2+3n+3)(n+1)} \xrightarrow{\Delta < 0} -1$
 $\xrightarrow{\Delta < 0} -1 \Rightarrow \text{Df} = \mathbb{R} - \left\{ -\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4} \right\}$

الف) $\frac{n+3}{n^2-2n^2+3n-1} = \frac{n+3}{(n^2-n+1)(n-1)} \xrightarrow{\Delta < 0} 1$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = \mathbb{R} - \{1\}$

ب) $\sqrt{\frac{n+3}{n^2-2n^2+3n-1}} \geq 0 \Rightarrow \sqrt{\frac{n+3}{(n-1)(n^2-n+1)}} \geq 0$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = (-\infty, 3] \cup (1, +\infty)$

الف) $y = \frac{2}{2^x - 2|x-1| - 2x + 2} \Rightarrow 2^x - 2|x-1| - 2x + 2 \neq 0$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = \mathbb{R} - \{x_0, y_0, z_0\}$

الف) $y = \sqrt{[x]-2} \geq 0 \Rightarrow [x] \geq 2 \Rightarrow \text{Df} = [2, +\infty)$

ب) $y = \frac{2x^2+4}{[x^2]-2[x]+4} \Rightarrow \frac{([x]-2)([x]+1)}{[x]^2-2[x]+4} \Rightarrow \text{Df} = [2, 4) \cup [1, 0)$
 $\xrightarrow{[x]=2} [2, 4)$
 $\xrightarrow{[x]=1} [-1, 0)$

الف) $\sqrt{[x-\frac{1}{2}]} + [x+\frac{1}{2}] \geq 0 \Rightarrow 2[x] \geq -\frac{1}{2} \Rightarrow [x] \geq -\frac{1}{4} \Rightarrow \text{Df} = [0, +\infty)$

ب) $\sqrt{[x-\frac{1}{2}]} + [\frac{1}{2}-x] \geq 0 \Rightarrow [x] + [-x] \geq 0 \Rightarrow [x] + [-x] \geq 0 \Rightarrow \text{Df} = \mathbb{Z}$

الف) $\frac{\cot x + 1}{\csc x + 1} \Rightarrow \text{Df} = \mathbb{R} - \left\{ k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2}, k\pi \right\}$
 $\csc x \neq -1, \cot x \neq 0 \Rightarrow \sin x \neq 0$

ب) $\sqrt{1-\sin^2 x} \geq 0 \Rightarrow 1 \geq \sin^2 x \Rightarrow \frac{1}{2} \geq \sin^2 x \Rightarrow \frac{1}{\sqrt{2}} \leq \sin x \leq \frac{1}{\sqrt{2}}$
 $\text{Df} = \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right]$

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 $\text{Df} = \mathbb{R} - \left(k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right)$

الف) $y = \arcsin(n^2+n+1) \Rightarrow \frac{1}{2}n^2+n+1 \leq 1 \Rightarrow n^2+2n \leq 0 \Rightarrow n(n+2) \leq 0 \Rightarrow n \in [-2, 0]$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = [-2, 0]$

ب) $\log y = \sqrt{a+x} \Rightarrow a+x \geq 0 \Rightarrow x \geq -a \Rightarrow \text{Df} = [-a, +\infty)$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = [-a, +\infty)$

الف) $y = \log_p(1-\log_p n) \Rightarrow 1-\log_p n > 0 \Rightarrow \log_p n < 1 \Rightarrow n < p \Rightarrow \text{Df} = (0, p)$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = (0, p)$

ب) $y = \log_p(1-\log_p \frac{1}{p}) \Rightarrow 1-\log_p \frac{1}{p} > 0 \Rightarrow \log_p \frac{1}{p} < 1 \Rightarrow \frac{1}{p} < p \Rightarrow \text{Df} = (0, \frac{1}{p})$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = (0, \frac{1}{p})$

الف) $y = \sqrt{\frac{x-n}{x-1}} \geq 0 \Rightarrow \frac{x-n}{x-1} \geq 0 \Rightarrow \frac{x-n}{x-1} \geq 0 \Rightarrow \text{Df} = [1, n]$
 $\xrightarrow{\Delta < 0} 1 \Rightarrow \text{Df} = [1, n]$

ب) $\left(\frac{n+d}{n+2} \right)! \Rightarrow \frac{n+d}{n+2} \in \mathbb{N} \Rightarrow \frac{n+d}{n+2} = k \Rightarrow n = 2k-d \Rightarrow \text{Df} = \left\{ n/n = \frac{2k+d}{2k-2}, k \in \mathbb{N} \right\}$