

الف) $y = \frac{n+3}{(n-1)(n+3)(n-\frac{1}{3})} \rightarrow D_f = R - \{1, \frac{1}{3}, -3\}$

ب) $y = \frac{n+3}{(n+1)(n+3)(n+\frac{1}{3})} \rightarrow D_f = R - \{-1, -3, -\frac{1}{3}\}$

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

ب) $y = \frac{n+3}{(n-1)(n^2-n+1)} \geq 0 \rightarrow D_f = [-3, 1)$

if $n > 1$
 $\frac{3}{n-1} = \frac{3}{(n-2)(n-1)} \rightarrow n \neq 2$

if $n < 1$
 $\frac{3}{n+3} = \frac{3}{n(n+3)} \rightarrow n \neq 0$

$D_f = R - \{2, 5, 0, -3\}$

الف) $[-n] - 2 \geq 0 \rightarrow [-n] \geq 2 \rightarrow n \leq -2$

$[n] \rightarrow A$

ب) $\frac{5n^2+9}{A^2-2A-3} \rightarrow \frac{5n^2+9}{(A-3)(A+1)}$

$A \neq 3$
 $A \neq -1$

$[n] \neq 3 \rightarrow R - [3, 4)$
 $[n] \neq -1 \rightarrow R - (-2, -1]$

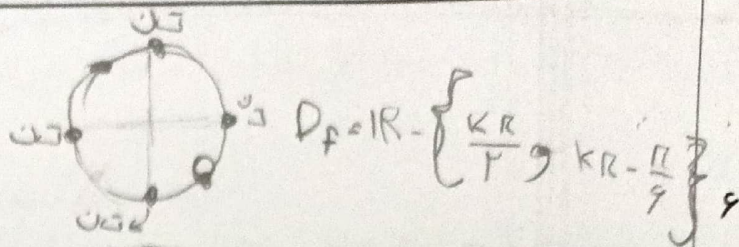
$D_f = (-\infty, 2] \cup (1, 3) \cup [4, +\infty)$

الف) $y = \sqrt{2[n-\frac{1}{3}]+1} \rightarrow 2[n-\frac{1}{3}]+1 \geq 0 \rightarrow [n-\frac{1}{3}] \geq -\frac{1}{2}$

$n - \frac{1}{3} \geq 0 \rightarrow n \geq \frac{1}{3} \rightarrow D_f = [\frac{1}{3}, +\infty)$

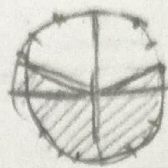
ب) $\sqrt{[n-\frac{1}{3}]+[\frac{1}{3}-n]} \rightarrow n - \frac{1}{3} \leq z \rightarrow D_f = \{n | n = k + \frac{1}{3}, k \in \mathbb{Z}\}$

الف) $\tan \theta + 1 \neq 0 \quad \tan \theta \neq -1$



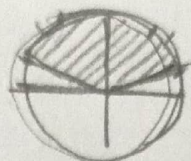
$$D_f = \mathbb{R} - \left\{ \frac{kR}{2}, kR - \frac{\pi}{2} \right\}$$

ب) $1 - 2\sin^2 \theta \geq 0 \quad \sin \theta \leq \frac{1}{2}$



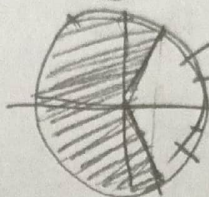
$$D_f = \left[\frac{kR + \frac{\pi}{6}}{2}, \frac{kR + \frac{5\pi}{6}}{2} \right]$$

الف) $2\sin \theta - 1 \geq 0 \quad \sin \theta \geq \frac{1}{2}$



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

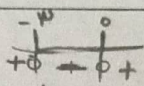
ب) $1 - 2\cos \theta \geq 0 \quad \cos \theta \leq \frac{1}{2}$



$$D_f = \left[\frac{kR + \frac{\pi}{3}}{2}, \frac{kR + \frac{5\pi}{3}}{2} \right]$$

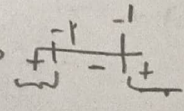
الف) $-1 \leq n^2 + 2n + 1 \leq 1$

$$n^2 + 2n \leq 0$$



$$n \rightarrow [-2, 0] \cup [-1, 0]$$

$$n^2 + 2n + 2 \geq 0$$



ب) $a - 2n \geq 0 \quad n \leq \frac{a}{2}$

$$n \rightarrow \left[\frac{19}{2}, \frac{a}{2} \right]$$

$$0 \leq \sqrt{a+n} \leq \frac{1}{2} \rightarrow a - 2n \leq \frac{1}{2} \quad 2n \geq \frac{19}{2} \quad n \geq \frac{19}{2}$$

الف) $1 - \log_2 n \geq 0$

$$\log_2 n \leq 1$$

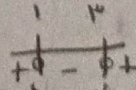
$$\rightarrow n \leq 2 \rightarrow D_f = (0, 2]$$

ب) $1 - \log_2 \frac{n}{2} \geq 0$

$$\log_2 \frac{n}{2} \leq 1$$

$$n \leq 4 \rightarrow D_f = (0, \frac{1}{2}]$$

الف) $n^2 - 2n + 2 \geq 0 \rightarrow n^2 - 2n + 2 \leq 0$



$$D_f = [1, 2]$$

ب) $\frac{2n+a}{2n+2} \in W \rightarrow 2n+a = 2nw+2w \quad n(2-rw) = 2w-a$

$$D_f = \left\{ n | n = \frac{2k-a}{2-rk}, k \in W \right\} \leftarrow n = \frac{2w-a}{2-rw}$$