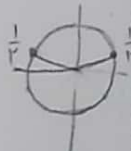


۲۰ آفنین

الف) $y = \sqrt{\frac{n^2-9n}{n^3-n}}$ $\frac{n^2-9n}{n^3-n} \geq 0$ $\frac{n(n-9)}{n(n-1)(n+1)} \geq 0$ $\frac{n-9}{(n-1)(n+1)} \geq 0$ $n \in (-1, 0) \cup (9, +\infty)$ Ⓟ ✓	ب) $y = \sqrt{\frac{n^5-n^3}{n^3-n}}$ $\frac{n^5-n^3}{n^3-n} \geq 0$ $\frac{n^3(n^2-1)}{n(n^2-1)} \geq 0$ $\frac{n^2}{n} \geq 0$ $n \in \mathbb{R}$ Ⓟ ✓	۱
الف) $y = \frac{n+1}{\sqrt{n+1n}}$ $n+1n \geq 0$ $ n \geq -n$ $D_f = (0, +\infty)$ Ⓟ ✓	ب) $y = \frac{1}{\sqrt{n n }}$ $n n \geq 0$ $n \neq 0$ $D_f = (0, +\infty)$ Ⓟ ✓	۲
الف) $y = \sqrt{2-[n]}$ $2-[n] \geq 0$ $[n] \leq 2$ $D_f = (-\infty, 2)$ Ⓟ ✓	ب) $y = \frac{1}{\sqrt{2-[n]}}$ $2-[n] \geq 0$ $[n] \leq 2$ $D_f = (-\infty, 2)$ Ⓟ ✓	۳
الف) $y = \sqrt{[n-\frac{1}{p}] + [n+\frac{2}{p}]}$ $[n-\frac{1}{p}] + [n+\frac{2}{p}] \geq 0$ $[n+\frac{2}{p}-1] + [n+\frac{2}{p}] \geq 0$ $2[n+\frac{2}{p}-1] \geq 0$ $2[n+\frac{2}{p}] \geq 1$ $[n+\frac{2}{p}] \geq \frac{1}{2}$ $n+\frac{2}{p} \geq \frac{1}{2}$ $n \geq \frac{1}{p}-\frac{2}{p}$ $D_f = [\frac{1}{p}, +\infty)$ Ⓟ ✓	ب) $y = \sqrt{[n-\frac{1}{p}] + [-n+\frac{1}{p}]}$ $[n-\frac{1}{p}] + [-n+\frac{1}{p}] \geq 0$ $[n-\frac{1}{p}] + [-(n-\frac{1}{p})] \geq 0$ $0 \in \mathbb{Z} \rightarrow [n] + [-n] = 0$ $0 \notin \mathbb{Z} \rightarrow [n] + [-n] = -1$ $D_f = \{n n = k + \frac{1}{p}, k \in \mathbb{Z}\}$ Ⓟ ✓	۴
الف) $y = \frac{r}{\sin n - 1}$ $\sin n - 1 \neq 0$ $\sin n \neq 1$ $R = \{2k\pi + \frac{\pi}{2}\}$ Ⓟ ✓	ب) $y = \frac{r}{r \sin n^2 - 1}$ $r \sin n^2 - 1 \neq 0$ $\sin n^2 \neq \frac{1}{r}$ $\sin n \neq \pm \sqrt{\frac{1}{r}}$ $R = \{\frac{k\pi}{r} + \frac{\pi}{r}\}$ Ⓟ ✓	۵

الف) $y = \sqrt{r \sin n - 1} \quad r \sin n - 1 \geq 0$ $\sin n \geq \frac{1}{r}$ $2k\pi + \frac{\pi}{r} \leq n \leq 2k\pi + \frac{5\pi}{r}$ $[2k\pi + \frac{\pi}{r}, 2k\pi + \frac{5\pi}{r}]$ 	ب) $y = \sqrt{\cos n - 1} \quad \cos n - 1 \geq 0$ $\cos n \geq 1$ $\{2k\pi\}$		
الف) $\cos y = n - 3 \quad -1 \leq \cos y \leq 1$ $-1 \leq n - 3 \leq 1 \quad n - 3 \geq -1 \quad n \geq 2$ $n - 3 \leq 1 \quad n \leq 4 \quad 2 \leq n \leq 4$ $D_f = [-4, -2] \cup [2, 4]$	ب) $y = \arcsin(n^2 + 3n + 1)$ $-1 \leq n^2 + 3n + 1 \leq 1 \quad n^2 + 3n + 1 \leq 1$ $n^2 + 3n \leq 0 \quad n(n+3) \leq 0 \quad \frac{-3}{-} \quad \frac{0}{+}$ $-3 \leq n \leq 0$ $n^2 + 3n + 1 \geq 1 \quad (n+1)(n+2) \geq 0$ $n \leq -2 \cup n \geq -1 \quad [-3, 0] \cap (-\infty, -2] = [-3, -2]$ $[-3, 0] \cap [-1, \infty) = [-1, 0]$ $D_f = [-3, -2] \cup [-1, 0]$		
الف) $y = \sqrt{r - \log_r(n-2)} \quad n-2 > 0$ $r - \log_r(n-2) \geq 0 \quad \log_r(n-2) \leq r$ $n-2 \leq r^r \quad n-2 \leq 9 \quad n \leq 11 \quad 2 < n \leq 11$ $D_f = (2, 11]$	ب) $y = \log(n^2 - n) \quad n^2 - n > 0$ $n(n-1) > 0 \quad n(n-1)(n+1) > 0$ $\frac{-1}{-} \quad \frac{0}{+} \quad \frac{1}{+}$ $D_f = (-1, 0) \cup (1, \infty)$		
الف) $y = \frac{r}{f^n + 1}$ $f^n + 1 \neq 0 \quad f \neq -1$ $\mathbb{R}$	ب) $y = \frac{r}{f^n - 1}$ $f^n - 1 \neq 0 \quad f^n \neq 1 \quad n \neq 0$ $\mathbb{R} - \{0\}$	2-1) $y = \frac{r}{f^n - 2}$ $f^n - 2 \neq 0 \quad f^n \neq 2$ $\mathbb{R} - \{\log_f^r 2\}$	3) $y = \frac{r}{f^n - r}$ $f^n - r \neq 0 \quad f^n \neq r$ $\mathbb{R} - \{\log_f^r r\}$
الف) $y = (f_n + 1)!$ $f_n + 1 \in \mathbb{N}$ $f_n \in \mathbb{N} - 1 \quad n \in \frac{\mathbb{N} - 1}{f}$ $\{n \mid n = \frac{k-1}{f}, k \in \mathbb{N}\}$	ب) $y = \left(\frac{r_n - r}{r_n - \delta}\right)!$ $\frac{r_n - r}{r_n - \delta} \in \mathbb{N}$ $r_n w - \delta w \in r_n - r$ $r_n w - r_n \in \delta w - r$ $n(rw - r) \in \delta w - r$ $n \in \frac{\delta w - r}{rw - r} \quad \{n \mid n \in \frac{\delta k - r}{rk - r}, k \in \mathbb{N}\}$		