

$$1) y = \sqrt{\frac{n^2 - 9n}{n^2 - n}} \Rightarrow \frac{n^2 - 9n}{n^2 - n} \geq 0 \Rightarrow \frac{n(n-9)}{n(n-1)} \geq 0 \Rightarrow \frac{n-9}{n-1} \geq 0$$

DF = (-1, 0) \cup (0, 1) \cup [9, +\infty)

$$2) y = \sqrt{\frac{n^2 - 2n}{n^2 - n}} \Rightarrow \frac{n^2 - 2n}{n^2 - n} \geq 0 \Rightarrow \frac{n(n-2)}{n(n-1)} \geq 0 \Rightarrow \frac{n-2}{n-1} \geq 0$$

DF = \mathbb{R} - \{0, -1\}

$$1) y = \frac{n+1}{\sqrt{n+1}} \Rightarrow \frac{n+1}{\sqrt{n+1}} \geq 0 \Rightarrow n+1 \geq 0 \Rightarrow n \geq -1$$

DF = \mathbb{R}^+

$$2) y = \frac{1}{\sqrt{n+1}} \Rightarrow \frac{1}{\sqrt{n+1}} \geq 0 \Rightarrow n+1 \geq 0 \Rightarrow n \geq -1$$

DF = \mathbb{R}^+

$$1) y = \sqrt{x-[x]} \Rightarrow x-[x] \geq 0 \Rightarrow x \geq [x]$$

DF = (-\infty, 1)

$$2) y = \frac{1}{\sqrt{x-[x]}} \Rightarrow \sqrt{x-[x]} > 0 \Rightarrow x-[x] > 0 \Rightarrow x \neq [x]$$

DF = (-\infty, 1)

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

DF = [\frac{1}{2}, +\infty)

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

DF = \{n | n = k + \frac{1}{2}, k \in \mathbb{Z}\}

$$1) y = \frac{r}{\sin n-1} \Rightarrow \sin n-1 \neq 0 \Rightarrow \sin n \neq 1$$

DF = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}

$$2) y = \frac{r}{\sqrt{\sin n-1}} \Rightarrow \sqrt{\sin n-1} \neq 0 \Rightarrow \sin n-1 \neq 0 \Rightarrow \sin n \neq 1$$

DF = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}

$$1) y = \sqrt{r \sin n - 1} \Rightarrow r \sin n - 1 \geq 0 \Rightarrow r \sin n \geq 1 \Rightarrow \sin n \geq \frac{1}{r} \quad DF = \left[K\pi + \frac{\pi}{4}, K\pi - \frac{\pi}{4} \right]$$

$$r) y = \sqrt{\cos n - 1} \Rightarrow \cos n - 1 \geq 0 \Rightarrow \cos n \geq 1 \quad DF = \{rK\pi\}$$

$$1) \cos y = |n| \cdot r \Rightarrow -1 \leq \cos y \leq 1 \Rightarrow -1 \leq |n| \cdot r \leq 1 \Rightarrow r \leq |n| \leq \frac{1}{r} \quad \begin{matrix} \textcircled{1} r \leq n \leq \frac{1}{r} \\ \textcircled{2} -\frac{1}{r} \leq n \leq -r \end{matrix} \quad DF = [r, \frac{1}{r}] \cup [-\frac{1}{r}, -r]$$

$$r) y = \arcsin(r^n + r^{n+1}) \Rightarrow -1 \leq r^n + r^{n+1} \leq 1 \Rightarrow \begin{matrix} \textcircled{1} r^n + r^{n+1} \geq 1 \Rightarrow r^n(r+1) \geq 1 \Rightarrow (n+1)(n+r) \geq 0 \Rightarrow n \leq -r \text{ or } n \geq -1 \\ \textcircled{2} r^n + r^{n+1} \leq 1 \Rightarrow r^n(r+1) \leq 1 \Rightarrow (n+1)(n+r) \leq 0 \Rightarrow -r \leq n \leq 0 \end{matrix} \quad DF = [-r, -1] \cup [-1, 0]$$

$$1) y = \sqrt{r \cdot \log_r(n-r)} \Rightarrow r \cdot \log_r(n-r) \geq 0 \Rightarrow \log_r(n-r) \geq \frac{1}{r} \Rightarrow n-r \geq r \Rightarrow n \geq r+1 \quad \textcircled{2} n-r \geq 0 \Rightarrow n \geq r \quad DF = (r+1, \infty)$$

$$r) y = \log(n^r - n) \Rightarrow (n^r - n) \geq 0 \Rightarrow n(n^{r-1} - 1) \geq 0 \Rightarrow n(n-1)(n+1) \geq 0 \Rightarrow n \leq -1 \text{ or } n \geq 1 \quad DF = (-\infty, -1) \cup (1, \infty)$$

$$1) y = \frac{r}{\varepsilon^n + 1} \Rightarrow \varepsilon^n + 1 \neq 0 \Rightarrow \varepsilon^n \neq -1 \quad DF = \mathbb{R}$$

$$r) y = \frac{r}{\varepsilon^n - 1} \Rightarrow \varepsilon^n - 1 \neq 0 \Rightarrow \varepsilon^n \neq 1 \Rightarrow \varepsilon^n = 1 \quad DF = \mathbb{R} - \{0\}$$

$$w) y = \frac{r}{\varepsilon^{n-r}} \Rightarrow \varepsilon^{n-r} \neq 0 \Rightarrow \varepsilon^{n-r} = (r^r)^n \neq r^1 \Rightarrow r^{rn} \neq r^1 \Rightarrow rn \neq 1 \Rightarrow n \neq \frac{1}{r} \quad DF = \mathbb{R} - \{\frac{1}{r}\}$$

$$t) y = \frac{r}{\varepsilon^{2n-r}} \Rightarrow \varepsilon^{2n-r} \neq 0 \Rightarrow \varepsilon^{2n-r} \neq 1 \Rightarrow 2n-r \neq 0 \Rightarrow n \neq \frac{r}{2} \quad DF = \mathbb{R} - \{\frac{r}{2}\}$$

$$1) y = (\varepsilon_{n+1})! \Rightarrow \varepsilon_{n+1} \in \mathbb{W} \Rightarrow \varepsilon_n \in \mathbb{W} \Rightarrow n \in \frac{\mathbb{W}-1}{\varepsilon} \quad DF = \{n | n = \frac{k-1}{\varepsilon}, k \in \mathbb{W}\}$$

$$r) y = \left(\frac{r_{n-r}}{r_{n-\delta}} \right)! \Rightarrow \frac{r_{n-r}}{r_{n-\delta}} \in \mathbb{W} \Rightarrow r_{n-r} \in r_{n-\delta} \mathbb{W} \Rightarrow r_{n-r} \in \mathbb{W} \Rightarrow n-r \in \mathbb{W} \Rightarrow n \in \mathbb{W} + r \quad DF = \{n | n = \frac{k-r}{r}, k \in \mathbb{W}\}$$