

↳ $k = r + n = 11$

CP

(4)

(3)

(ω)

$$\Rightarrow \text{Ans: } D_f = (-\infty, -3) \cup (3, +\infty)$$

(4)

(✓)

CA

CA

$$\begin{aligned} \text{---)} \quad y = \sqrt{1 - \varepsilon \sin^2 n} &: \rightarrow 1 - \varepsilon \sin^2 n \geq 0 \\ \varepsilon \sin^2 n \leq 1 &\rightarrow \sin^2 n \leq \frac{1}{\varepsilon} \rightarrow \sin n \leq \pm \frac{1}{\sqrt{\varepsilon}} \quad : \quad \text{Unit Circle Diagram} \\ D_f &= \left[k\pi - \frac{\pi}{\sqrt{\varepsilon}}, k\pi + \frac{\pi}{\sqrt{\varepsilon}} \right] \end{aligned} \quad (1)$$

$$\begin{aligned} \text{a)} \quad y = \sqrt{1 - \log \frac{n-1}{r}} &: \quad 1) \quad n-1 \geq 0 \rightarrow n \geq 1 \\ & \quad 2) \quad 1 - \log \frac{n-1}{r} \geq 0 \rightarrow \log \frac{n-1}{r} \leq 1 \rightarrow n-1 \leq \frac{1}{r} : n \leq \frac{1}{r} + 1 \end{aligned} \quad (4)$$

$$\begin{aligned} \text{---)} \quad y = \frac{\sqrt{n^r - n}}{1 - \log \frac{n^r - n}{\varepsilon}} &: \quad \begin{cases} 1) \quad n^r - n \geq 0 \rightarrow 0 \leq n : \text{Unit Circle Diagram} \\ 2) \quad n^r - n \geq 0 \rightarrow 0 \leq n : \text{Unit Circle Diagram} \\ 3) \quad 1 - \log \frac{n^r - n}{\varepsilon} > 0 \rightarrow \log \frac{n^r - n}{\varepsilon} < 1 : n^r - n < \varepsilon \rightarrow n^r - n - \varepsilon < 0 : \frac{-1 \pm \sqrt{1 - 4\varepsilon}}{2} \end{cases} \\ & \quad : \text{Intersect} : D_f = (r, \varepsilon) \end{aligned}$$

$$\begin{aligned} \text{a)} \quad y = \sqrt{\frac{\varepsilon n - n^r}{r}} &: \quad \varepsilon n - n^r - 1 \geq 0 \rightarrow \varepsilon n - n^r \geq 1 \\ & \quad \varepsilon n - n^r - r \geq 0 \rightarrow n = r, 1 \\ & \quad \Rightarrow D_f = [1, r] \end{aligned} \quad (1)$$

$$\begin{aligned} \text{---)} \quad y = \left(\frac{rn + a}{r^2 n + \varepsilon} \right)! &: \quad \frac{rn + a}{r^2 n + \varepsilon} \in W \quad n = \frac{\varepsilon W - a}{rW - r} = \frac{-\varepsilon W + a}{rW - r} \\ & \quad : \quad D_f = \left\{ n \mid n = \frac{-\varepsilon k + a}{rk - r}, k \in W \right\} \end{aligned}$$