

$$\text{الف) } \sqrt{1 + \log \frac{r_{n-1}}{u}} \Rightarrow r_{n-1} > 0 \Rightarrow u > \frac{1}{r} \quad \log \frac{r_{n-1}}{u} > 0 \Rightarrow r_{n-1} > 1$$

$$u > 0 \quad u \neq 1 \quad m > \frac{1}{r}$$

$$D_f = \{u \mid u \leq \frac{1}{r} \Rightarrow (0, \frac{1}{r}] \cup \{1\}$$

6

$$\text{ب) } \log \frac{1}{4 + \sqrt{m} - |u|} \Rightarrow 4 + \sqrt{m} - |u| \neq 0 \quad \frac{1}{4 + \sqrt{m} - |u|} > 0 \Rightarrow 4 + \sqrt{m} - |u| > 0$$

$$4 \neq |u| - \sqrt{m} \quad \boxed{u > 0}$$

$$y = \sqrt{\frac{r_{n+1} + r}{n+b}} + a \Rightarrow n+b \neq 0$$

$$\frac{r_{n+1} + r}{n+b} + a > 0 \Rightarrow \frac{r_{n+1} + r}{n+b} > -a \Rightarrow$$

7

$$f(n) = \begin{cases} r_{n-1} ; [u] > r \rightarrow n > \Delta \\ r_{n+r} ; [u] \leq r \rightarrow n \leq \Delta \end{cases}$$

$$\text{1) } n > \Delta \quad y = \sqrt{r_{n-1} - n + 1} \Rightarrow \textcircled{1} \cap \textcircled{2} \Rightarrow n > \Delta$$

$$n > \Delta \quad \textcircled{1}$$

8

$$\text{2) } n \leq \Delta \quad y = \sqrt{r_{n+r} - n + 1} \Rightarrow y = \sqrt{r_{n+1} + r} \Rightarrow r_{n+1} + r > 0 \Rightarrow n > -\frac{r}{r} \Rightarrow \frac{r}{r} < n < \Delta$$

$$\textcircled{3} \cap \textcircled{4} \Rightarrow \frac{r}{r} < n < \Delta$$

$$(u_0, 1, 2, 3, \dots) \Rightarrow \frac{r}{r} < a \Rightarrow b = (-\frac{r}{r} + a)$$

$$y = \frac{r_1 r_n^r + r_2 r_n^r + 1}{(r_n^r + r_{n+1})^r} \Rightarrow \frac{r_1 r_n^r + 1}{(r_{n+1})^r} \Rightarrow \frac{(r_{n+1})^r}{(r_{n+1})^r}$$

9

$$\Rightarrow y = \frac{1}{r_{n+1}} \Rightarrow r_{n+1} \neq 0 \Rightarrow r_n \neq -1 \Rightarrow n \neq -\frac{1}{r} \Rightarrow D = \mathbb{R} \setminus \{-\frac{1}{r}\}$$

$$y = \sqrt{1 - \log(r_n - a)} \Rightarrow r_n - a > 0 \Rightarrow 1 - \log(r_n - a) > 0 \Rightarrow 1 > \log(r_n - a)$$

$$r_n > a \quad n > \frac{a}{r} \quad 1 > r_n - a$$

10

$$C-b = \frac{1+a-a}{r} = \frac{1}{r} \in b \quad \frac{a}{r} < n \leq \frac{1+a}{r} \Leftarrow$$

$$1+a > r_n \quad \frac{1+a}{r} > n$$