

$$f(n) = \frac{(n-r)(n-1)}{n+a} + b \rightarrow f(x) = x \text{ سطر صاف}$$

④

$$\xrightarrow{n=-r} f(n) = (n-1) + b \rightarrow b = 1 \rightarrow a-b = -\varepsilon$$

$$\xrightarrow{n=1} f(n) = (n-r) + b \rightarrow b = r \rightarrow a-b = -\varepsilon \rightarrow \text{در صورت جواب } \boxed{-\varepsilon}$$

$$\frac{x^r + rx^r - x - r}{x^r - 1} = \frac{(x^r - 1)(x+r)}{(x^r - 1)} = x+r ; n \neq \pm 1 \rightarrow f(n) = g(x) \rightarrow n+r = x+c \rightarrow c=r$$

⑤

$$\xrightarrow{n=\pm 1} x+r = \frac{ax+r}{x+b} \quad \begin{array}{l} \xrightarrow{n=1} r = \frac{a+r}{1+b} \rightarrow r+rb = a+r \\ \xrightarrow{n=-1} 1 = \frac{-a+r}{-1+b} \rightarrow -1+b = -a+r \end{array} \rightarrow \left\{ \begin{array}{l} a = \frac{a}{r}, b = \frac{1}{r} \Rightarrow b+c = \frac{a}{r} \end{array} \right.$$

$$rf(1) - g(1) = k \rightarrow r(\sqrt{\varepsilon - ra} + k - 1) - (\sqrt{b - \varepsilon} + rk) = k$$

①

$$\rightarrow k = \sqrt{\varepsilon - ra} - \frac{1}{r} \sqrt{b - \varepsilon} - 1$$

$$\rightarrow ra - \frac{b}{r} - k = ra - \frac{b}{r} - \left(\sqrt{\varepsilon - ra} - \frac{1}{r} \sqrt{b - \varepsilon} - 1 \right)$$

$$D_{y \times f} \cap D_f \cap D_g = [-1, v]$$

⑨

$$D_g \cap m+r \geq 0 \rightarrow n \geq -1 \rightarrow n \leq v \text{ و } n \leq v \text{ و } n \leq v \rightarrow D_f \Rightarrow m - \lambda \geq 0 \xrightarrow{n \leq v} m = v$$

$$f - g(r) = \sqrt{v-r} + n - \sqrt{r(r)+r} = r+n - r\sqrt{r} = 4\sqrt{r} \rightarrow n = 4\sqrt{r} - r$$

$$m+n = v + 4\sqrt{r} - r = 4\sqrt{r} + \omega$$

$$y = (-1)^r (n - [n]) = n - [n] = \frac{1}{r}$$

①

جواب دارد چون خط $y = \frac{1}{r}$ را در ε نقطه صاف دارد.

