

-۱

$$f(u) = \begin{cases} 2u-1 & [u] > r \\ ru+r & [u] \leq r \end{cases}$$

$$y = \sqrt{f(u)-u+1}$$

$$[u] > r \rightarrow u \geq 5$$

$$f(u)-u+1 = 2u-1-u+1 = u$$

$u \geq 5$ شرط اریکال برقرار

$$[u] \leq r \rightarrow u < 5$$

$$f(u)-u+1 = ru+r-u+1 = ru+r$$

$$ru+r \geq 0 \Rightarrow u \geq -\frac{r}{r}$$

$$D_f = \left[-\frac{r}{r}, +\infty\right)$$

$$y = \frac{r(2u^r + ru^r + 1)u + r}{(ru^r + ru + 1)^r} = \frac{r(2u^r + 1)u + r}{(ru + 1)^r}$$

-۲

$$= \frac{r(2u+1)^r}{(ru+1)^r} = \frac{r}{ru+1}$$

$$ru+1 \neq 0 \quad u \neq -\frac{1}{r}$$

$$D_y = \mathbb{R} - \left\{-\frac{1}{r}\right\}$$

$$\frac{u^r + ru^r - u - r}{u^r - 1} = \frac{u^r(u+r) - 1(u+r)}{(u-1)(u+1)} = \frac{(u+r)(u^r-1)}{(u-1)(u+1)}$$

$$= \frac{(u+r)(u+1)(u-1)}{(u-1)(u+1)}$$

-۳

$$f(u) = x+r$$

$$f = g \Rightarrow u+r = u+c \quad \boxed{c=r}$$

$$u = -1 \quad \frac{-a+r}{b-1} = g(-1) \Rightarrow -a+r = b-1 \Rightarrow a+b=r$$

$$u = 1 \quad \frac{a+r}{b+1} = g(1) \Rightarrow a+r = b+1 \Rightarrow a-b=1$$

$$a+b=r$$

$$-(a-b=1)$$

$$cb=r \quad \boxed{b=\frac{1}{r}}$$

$$a+\frac{1}{r}=r \quad \boxed{a=\frac{r^2-1}{r}}$$

$$b+c = \frac{1}{r} + r = \left(\frac{r^2+1}{r}\right)$$

$$\frac{n+1}{n-1} = \frac{(n-1)(n+1)}{n^2 + an + b}$$

$$(n-1)^2 = n^2 - 2n + 1$$

$$\begin{cases} c=1 \\ b=1 \\ a=-2 \end{cases}$$

$$\frac{n+1}{n-1} = \frac{n+1}{n-1}$$

یا این عدد دایره
و عبارت را به صورت
می دهیم و آن را می گیریم
برای جواب دهیم

$$\boxed{-2+1+1=0} \quad D_f = D_g = \mathbb{R} - \{1\}$$

$$f(n+1) = (n+1-1)^2(n+1-1) = n(n^2 - 2n + 1) \quad -5$$

$$f(1-n) = (1-n-1)^2(1-n-1) = (-n-1)^2(-n) = (n+1)^2(-n) \\ = -n^3 - 2n^2 - n$$

$$g(n) = f(n+1) + f(1-n) = n^3 - 2n^2 + n - n^3 - 2n^2 - n = -4n^2$$

$$\boxed{g(n) = -4n^2}$$

$$f(-1)$$

$$1-2n = -1$$

$$2n = 2 \quad \boxed{x=1}$$

$$\boxed{f(1)=1}$$

$$f(1)$$

$$1-2n = 1$$

$$-2n = 0$$

$$\boxed{x=-1}$$

$$\boxed{f(-1) = 0}$$

$$f(-1) + f(1) = 0 + 1 = \boxed{1}$$

~~Answer~~

$$f(n+\sqrt{n}) = n^2 + 2n$$

$$n+\sqrt{n} = y$$

$$\sqrt{n} = t \Rightarrow n = t^2$$

$$t^2 + t = y$$

$$t^2 + t - y = 0$$

$$(t+y)(t-y) = 0$$

$$t < \frac{-2 \pm \sqrt{4-4(-y)}}{2} \quad \text{زیرا} \quad t = \sqrt{n} \geq 0$$

$$f\left(\frac{t^2+\sqrt{t^2}}{2}\right) = t^4 + t^2 \times t = \boxed{t^4 + t^3} \quad \boxed{n=t^2}$$

$$f(n) = n^2 + n$$

$$f(n-1) + f(1-n) = (n-1)^2 + (n-1) + (1-n)^2 + (1-n) \\ = n^2 - 2n + 1 + n - 1 + 1 - 2n + 1 + n - 1 = 0$$

$$c_n - c_n \geq 0$$

$$b - c_n \geq 0$$

$$\frac{c}{c} = 1 \rightarrow a = \frac{c}{c}$$

$$\frac{b}{c} = 1 \rightarrow b = c$$

$$f(1) = \sqrt{c-c} + k - 1 = k - 1$$

$$g(1) = \sqrt{c-c} + ck = ck$$

$$c(k-1) - ck = k$$

$$-k - c = k$$

$$k = -1$$

$$c_n - \frac{b}{c} - k = c\left(\frac{c}{c}\right) - \frac{c}{c} - (-1) = \textcircled{3}$$

$$f - g(r) = 4\sqrt{r}$$

$$\sqrt{m-r} + h - 2\sqrt{r} = 4\sqrt{r}$$

$$\sqrt{m-r} + h = 6\sqrt{r} \rightarrow r + h = 6\sqrt{r} \Rightarrow h = 6\sqrt{r} - r$$

$$m + r \geq 0 \Rightarrow m \geq -1 = 1 \quad Df = (-\infty, +\infty)$$

$$m = 1$$

$$m + h = 1 + 6\sqrt{r} - r = \boxed{1 + 6\sqrt{r}}$$