

نام و نام خانوادگی: ..... شماره: ..... کلاس: ..... (نام و نام خانوادگی)

$$f(n) = \begin{cases} 2n-1 & ; [n] > 1 \\ 2n+1 & ; [n] \leq 1 \end{cases} \quad \gamma, \sqrt{f(n)-n+1}$$

$$[n] > 1 \rightarrow n > 0 \rightarrow \sqrt{2n-1-n+1} = \sqrt{n} \quad ; \quad n > 0 \Rightarrow n > 1 \Rightarrow n > 1$$

$$[n] \leq 1 \rightarrow n < 0 \rightarrow \sqrt{2n+1-n+1} = \sqrt{n+2} \quad ; \quad n < 0 \rightarrow 2n+1 \geq 0 \Rightarrow n \geq -\frac{1}{2} \Rightarrow -\frac{1}{2} \leq n < 0$$

$$Df = \left[-\frac{1}{2}, +\infty\right)$$

$$\gamma, \frac{2n^3 + 3n^2 + 11n + 3}{(n^2 + 2n + 1)^2} \quad , \quad \frac{2(1n^3 + 11n^2 + 4n + 1)}{(n+1)^2} = \frac{2(2n+1)^2}{(n+1)^2}$$

$$\frac{2}{n+1} \checkmark \gamma \rightarrow 2n+1 \neq 0 \rightarrow n \neq -\frac{1}{2} \rightarrow Df = \mathbb{R} \setminus \left\{-\frac{1}{2}\right\}$$

$$f(n) = \begin{cases} \frac{n^2 + 2n - n - 1}{n^2 - 1} & n \neq \pm 1 \\ \frac{n+1}{n+1} & n = \pm 1 \end{cases} = g(n), n \in \mathbb{C} \quad \boxed{b+c = 1 + \frac{1}{2} = \frac{3}{2}}$$

$$n^2 + 2n - n - 1 = n^2 + n - 1 \rightarrow \frac{n^2 + n - 1}{(n-1)(n+1)} = \frac{(n-1)(n+1)}{(n-1)(n+1)} = n+1 = n+c$$

$$g(1), 2a+1 = 3 \rightarrow \frac{a+1}{1+b} = 3 \rightarrow 2b+1 = a+1 \rightarrow g(-1) = 1 \rightarrow \frac{1-a}{b-1} = 1$$

$$b-1 = 1-a \rightarrow b = 2-a \rightarrow b = \frac{3}{2}, a = \frac{1}{2}$$

$$f(n) = \frac{n+1}{n-c} \quad g(n) = \frac{n^2-1}{n^2+an+b} = \frac{(n+1)(n-1)}{n^2+an+b} \rightarrow \frac{(n-1)^2}{n^2+an+b}$$

$$n^2+an+b, (n-1)^2 \rightarrow \text{میان این دو} \rightarrow b=1, a=1$$

$$\text{جزاین دو (این دو) با هم متفاوت بود و دیگر برابر نبودند}$$

$$(n-1), (n-1) \rightarrow c=1 \quad a+b+c = 1+1-1 = 1$$

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

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

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

|                                                                                                                                                                                                                      |                                                                                                                                                                                                             |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| $f(1-r), \begin{cases} \sqrt{r} + r & r \leq 0 \\ r\sqrt{r} & r > 0 \end{cases}$<br>$f(1) + f(r), 1+r, 0$                                                                                                            | $f(1) \rightarrow 1-r, -1 \rightarrow r, 1 \rightarrow r\sqrt{1}, r$<br>$f(r) \rightarrow 1-r, r \rightarrow r, -1 \rightarrow r\sqrt{1} + r, 1$                                                            | <p>2</p> <p>6</p>  |
| $f(m+\sqrt{r}) = r^k + rm$<br>$r^k + rm \rightarrow r, r \rightarrow r^k + r, r, r, 1$                                                                                                                               | $r + \sqrt{r} = 4 \rightarrow t^k + t - 4 = 0$<br>$t = \sqrt{r}$<br>$(t+r)(t-1) = 0$<br>$t = r \rightarrow \sqrt{r} = r \rightarrow r = 1$                                                                  | <p>2</p> <p>7</p>  |
| $f(m-1) + f(1-m)$<br>$(r-1)^k + (r-1) + (1-m)^k + (1-m) = 0$<br>$r-1 + 1-m = 0$                                                                                                                                      | $f(m), r^k + m$<br>$(r-1)^k + (r-1) + (1-m)^k + (1-m) = 0$                                                                                                                                                  | <p>2</p> <p>8</p>  |
| $f(m) = \sqrt{r}a - ra + k - 1$<br>$ra - ra \geq 0 \rightarrow a \geq \frac{r}{k}$<br>$b = r, a = \frac{r}{k}$<br>$r-f-g = r\sqrt{r-r} + rk - r - \sqrt{r-r} - rk = k - 1$<br>$ra - \frac{b}{r} - k = r - 1 + (r-1)$ | $g(m) = \sqrt{b-r} + rk$<br>$r-f-g = [1, k]$<br>$b-r \geq 0 \rightarrow r \leq \frac{b}{k}$<br>$\textcircled{1} \rightarrow \textcircled{1} \cap \textcircled{5} = \frac{b}{k} \leq \frac{r}{k}$<br>$r-f-g$ | <p>2</p> <p>9</p>  |
| $f(m) = \sqrt{m-m} + h$<br>$r+m \geq 0 \rightarrow m \geq -r$<br>$f(r) = \sqrt{1-r} + h = r + h$<br>$r+h - r\sqrt{r}, r\sqrt{r} = 1\sqrt{r} - r \rightarrow m+h, 0, 1\sqrt{r} - r$                                   | $g(m) = \sqrt{r+m} / D_{fxy} = [-1, \sqrt{r}] / f-g(r) = r\sqrt{r}$<br>$m-m \geq 0 \rightarrow m \leq m \rightarrow m = 0$<br>$g(r) = \sqrt{1-r} = r\sqrt{r}$                                               | <p>2</p> <p>10</p> |