

$$n=a \rightarrow n^2+2n1 = an - 4 \Rightarrow a^2+2a = a^2-4 \Rightarrow a = -2$$

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$$g(r) = r \Rightarrow r(r) + b = r \Rightarrow b = -1$$

$$f(r) = r \Rightarrow \frac{r+a}{r+1} = r \Rightarrow a = 11$$

$$f(n) = \frac{n^2+11}{2n+1} \quad f(1) = \frac{1+11}{2+1} = \boxed{4}$$

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$$\left. \begin{matrix} n=2 \\ n=-1 \end{matrix} \right\} \rightarrow 2n^2+an+b=0 \Rightarrow \begin{matrix} 3 \cdot 2 + 2a + b = 0 \\ -(2 - a + b = 0) \end{matrix}$$

$$f(1) = \frac{f(1)+1}{2+4-1} = \boxed{\frac{5}{12}}$$

$$30 + 2a = 0$$

$$30 = -2a \Rightarrow a = -15$$

$$2 - a + b = 0 \Rightarrow b = -1$$

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$$-2n^2+an+b = a'(n+1)+k = \underbrace{a'n^2}_{-2} + \underbrace{2a'n}_{a} + \underbrace{1+k}_b$$

$$a' = -2 \Rightarrow a = -1$$

$$n = -1 \Rightarrow -2 - a + b = 0 \Rightarrow 2 + b = 0 \Rightarrow b = -2$$

$$a+b = -1-2 = -3$$

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$$n^2+mn1 \begin{cases} \nearrow \text{ریشه مضامف} \Rightarrow \Delta = 0 \Rightarrow m^2-4=0 \begin{cases} \nearrow m=2 \times \text{غلط} \\ \searrow m=-2 \checkmark \end{cases} \\ \searrow \text{فاکتور} \Rightarrow \Delta < 0 \Rightarrow m^2-4 < 0 \Rightarrow \frac{-2}{+} \frac{2}{-} \Rightarrow (-2, 2) \end{cases}$$

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$$(-2, 2) \cup \{-2\} = [-2, 2)$$

$$1 \quad x^2 \neq 0 \Rightarrow x \neq 0$$

$$2 \quad f - \frac{1}{x^2} > 0 \Rightarrow \frac{x^{2n} - 1}{x^2} > 0 \Rightarrow \frac{(x^n - 1)(x^n + 1)}{x^2} > 0$$

$$\frac{-\frac{1}{x} \quad 0^+ \quad \frac{1}{x}}{+b \quad -b \quad -b \quad +} \quad D = (-\infty, -\frac{1}{x}] \cup [\frac{1}{x}, \infty)$$

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$$mx^2 + 2mx + 1 > 0 \Rightarrow \begin{cases} 1 \quad m > 0 \\ 2 \quad \Delta \leq 0 \end{cases}$$

$$\Rightarrow 4m^2 - 4m \leq 0 \Rightarrow m^2 - m \leq 0$$

$$(0, 1]$$

$$\frac{0 \quad 1}{+\frac{0}{4} - \frac{1}{4} +}$$

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برای  $m=0$  نیز عبارت

دانشی  $\mathbb{R}$  دارد.

$$\Rightarrow m \in [0, 1]$$

دانشی  $g$  برابر  $\mathbb{R}$  است پس  $a = \frac{1}{r}$

$$r(\frac{1}{r}) + 1 = f(\frac{1}{r}) + k \Rightarrow r = r + k \Rightarrow k = 0$$

$$a + k = \frac{1}{r} + 0 = \frac{1}{r}$$

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$$g(1) = f(1) \Rightarrow \frac{9-r}{r+2} = r+b \Rightarrow 1 = r+b \Rightarrow b = -r$$

$$g(-\frac{r}{2}) = f(-\frac{r}{2}) \Rightarrow -r-2 = -ra+r \Rightarrow -ra = -9 \Rightarrow a = r$$

$$a - b = r - (-r) = 2$$

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$$g(x) = f(x) \Rightarrow ra^2 + ra = x + x \Rightarrow ra^2 + ra - f = 0 \Rightarrow$$

$$a^2 + a - r = 0 \Rightarrow a \begin{cases} \rightarrow a = -r \\ \rightarrow a = 1 \end{cases}$$

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