

A110

تکالیف سری ۲

دوازدهم A دفتر

مریم توکلی

(سوال ۱)

۲

$$f(n) = (n+1)^2 + (2n-1)^2 + mn^2 + nm + m$$

$$g(n) = \{(x, m), (n, p+1), (p+2, -1), (-9, p+k)\}$$

$$m+n+p+k=5$$

$$f(n) = n^2 + 2n + 1 + 9n^2 - 4n + 1 + mn^2 + nm + m$$

$$\Rightarrow (1+9+m)n^2 + (2-4+n)n + mn + 2 = f(n)$$

در تابع ثابت داریم $f(n) = k$ بنابراین ضرایب n^2 و n باید صفر باشند.

$$\Rightarrow 1+m=0 \Rightarrow \underline{m=-1} \quad n-2=0 \Rightarrow \underline{n=2}$$

$g(n)$ تابع است پس:

$$(2, m) = (2, p+1) \Rightarrow -1 = p+1 \Rightarrow \underline{p=-2}$$

$$(-9, -1) = (-9, p+k) \Rightarrow -2+k = -1 \Rightarrow \underline{k=1}$$

$$\Rightarrow m+n+p+k \Rightarrow -1+2-2+1 = \underline{-1}$$

(سوال ۲)

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الف) $\sqrt{\frac{n-2}{n^2-2n^2-1}} \rightarrow \sqrt{\frac{n-2}{(n^2-4)(n^2+1)}} \Rightarrow \sqrt{\frac{n-2}{(n-2)(n+2)(n^2+1)}}$

$\xrightarrow{\text{Cancle}}$
 $\xrightarrow{\text{Simplify}}$
 $\xrightarrow{\text{Simplify}}$

$\frac{-2}{-2} + 1 + \Rightarrow \boxed{D_f = (-2, +\infty)}$

$\{2\}$

آپادانا

سوال (۳)

$$y = \frac{1}{|n-r|-1-k}$$

$$|n-r|-1 \neq k \rightarrow |n-r|-1 \neq \pm k$$

سوال (ع)

$$\left. \begin{aligned} n-r &\neq k+1 \Rightarrow n \neq k+r \\ n-r &\neq -k-1 \Rightarrow n \neq 1-k \\ n-r &\neq 1-k \Rightarrow n \neq r-k \\ n-r &\neq k-1 \Rightarrow n \neq k+1 \end{aligned} \right\}$$

$$\xrightarrow[\text{در ادامه باقی ماند}]{\text{در صورتی که}} r-k = k+1 \Rightarrow k=1$$

$$\begin{aligned} &\searrow n-r \neq k+1 \\ &\downarrow n-r \neq 1-k \end{aligned}$$

* اگر k از این باشد، فرجه به جای k آید - با این شرط که $k \neq 1$

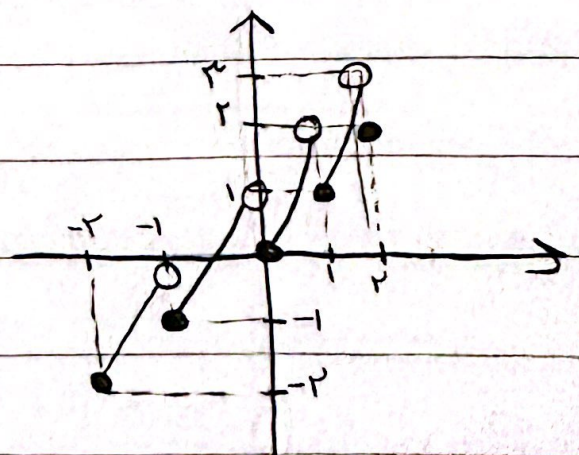
منفی خواهد بود پس $k \neq -1$ $k=1$ ، در این صورت $k=1$ پس $k \neq 1$

سوال (د)

$$y = 2n - [n] \quad [-2, 2]$$

$$\begin{aligned} n \in [-2, -1) \quad [n] = -2 &\rightarrow 2n - (-2) = 2n + 2 \\ n \in [-1, 0) \quad [n] = -1 &\rightarrow 2n - (-1) = 2n + 1 \\ n \in [0, 1) \quad [n] = 0 &\rightarrow 2n - 0 = 2n \\ n \in [1, 2) \quad [n] = 1 &\rightarrow 2n - 1 \end{aligned}$$

$$\begin{aligned} n \in [2, 2) \quad [n] = 2 &\rightarrow 2n - 2 \\ n = 2 \quad [n] = 2 &\rightarrow 2 \end{aligned}$$



$$f(m) = \frac{n^r - \epsilon m + r}{n+a} + b$$

$$f(m) = n \log_2 C \quad (4 \text{ دال})$$

(2)

$$\frac{(n-1)(n-r)}{n+a} = n-b \Rightarrow (n-1)(n-r) = (n-b)(n+a)$$

$$\Rightarrow n^r - \epsilon m + r = n^r + (a-b)n - ab \rightarrow \begin{cases} ab = -r \\ a-b = -\epsilon \end{cases}$$

$$f(m) = \begin{cases} \frac{n^r + r n^r - n - r}{n^r - 1} & n \neq \pm 1 \\ \frac{an + r}{n+b} & n = \pm 1 \end{cases}$$

$$g(m) = n+c \quad b+c = ?$$

(7 دال)

(2)

$$f(m) = \frac{n(n^r-1) + r(n^r-1)}{n^r-1} = \frac{n+r}{n^r-1}$$

$$\Rightarrow f(m) = g(m) = n+r \Rightarrow \underline{C=r}$$

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

$$f(-1) = g(-1) \Rightarrow \frac{r-a}{b-1} = 1 \rightarrow b-1 = r-a \rightarrow \underline{a+b = r}$$

$$b+c = r + \frac{1}{r} = \boxed{r, \frac{1}{r}}$$

$$f(m) = \sqrt{\epsilon m - r a} + k - 1 \quad g(m) = \sqrt{b - \epsilon m} + r k$$

(10 دال)

$$r f - g \{(1, k)\} \quad r a - \frac{b}{r} - k = 5$$

$$D_r f - g \{1\} \rightarrow \frac{b}{r} = \frac{r a}{r} = 1 \rightarrow \begin{cases} b = r \\ a = \frac{r}{2} \end{cases}$$

variables don't

$$D_f \Rightarrow \epsilon m - r a \geq 0 \Rightarrow m \geq \frac{r a}{\epsilon}$$

$$D_g \Rightarrow b - \epsilon m \geq 0 \Rightarrow m \leq \frac{b}{\epsilon}$$

پایان

$$f(g(u)) = k \rightarrow f(1) - g(u) = k \Rightarrow f(0+k-1) - (0+rk) = k$$

$$\Rightarrow rk - r - rk = k \Rightarrow \underline{k = -1} \quad \checkmark$$

$$f\left(a - \frac{b}{p} - k\right) = f\left(\frac{f}{p}\right) - \frac{f}{p} - (-1) = f - r + 1 = \boxed{r} \quad \checkmark$$

$$f(m) = \sqrt{m-n} + n \quad g(m) = \sqrt{2m+r} \quad D_{f \times g} = [-1, v] \quad \text{(سوال 9)}$$

$$f - g(r) = 4\sqrt{r} \quad m+n = 5$$

$$D_g = [-1, +\infty) \rightarrow D_f \cap D_g = [-1, v] \quad \checkmark$$

$$D_f \rightarrow m-n \geq 0 \Rightarrow n \leq m \rightarrow D_f = (-\infty, m] \quad \downarrow m=v$$

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

$$\downarrow g(r) = \sqrt{2} = 2\sqrt{r} \Rightarrow n+r = 4\sqrt{r} \Rightarrow n = 4\sqrt{r} - r$$

$$\Rightarrow m+n = v + 4\sqrt{r} - r = \boxed{v + 4\sqrt{r}} \quad \checkmark$$

(سوال 1)

$$y = \underbrace{(-1)^r}_{1} (n - [n]) = \frac{1}{p} \quad [-r, r]$$

$$\Rightarrow n - [n] = \frac{1}{p}$$

$$n \in [-r, -1) \quad [n] = -r \quad y = n + r$$

$$n \in [-1, 0) \quad [n] = -1 \quad y = n + 1$$

$$n \in [0, 1) \quad [n] = 0 \quad y = n$$

$$n \in [1, r) \quad [n] = 1 \quad y = n - 1$$

$$n = r \rightarrow y = 0$$

