

1910

نام و نام خانوادگی: پرنام باسختنامه تشریحی تکلیف شماره ۲ کلاس: (۲/۹/۱۳۹۰)

$f(n) =$ تابع ثابت $\Rightarrow 0 = 2 \cdot 0 = 2 \cdot 0 = 0 \Rightarrow f(n) = -10 + 2 = -8$

$(n+1)^2 + (m+1)^2 = n^2 + 1 + m^2 + 1 - 2n = 10n^2 - 2m + 2 + m^2 + 2n + m^2$

$g(n) = \{(29-10)(29p+1)9(p+29-1)9(-99p+k)\}$ تابع است. $p+1=0 \Rightarrow p=-1$

$m+n+p+k = 10-10-11+10 = -7$ جواب $\checkmark$ $p+k = -1 \Rightarrow k=0$ $\checkmark$

الف) $y = \sqrt{\frac{x-2}{x^2-2x^2-8}} \Rightarrow \frac{x-2}{x^2-2x^2-8} > 0$

$\Rightarrow x^2-2x^2-8 \neq 0 \Rightarrow x^2-2x^2-8 \neq 0 \Rightarrow (x-2)(x+2) = x^2-4$

ب) $f(x) = \frac{x^2+1}{x^2-2x^2-8} \Rightarrow x^2-2x^2-8 \neq 0 \Rightarrow x^2-2x^2-8 \neq 0 \Rightarrow x \neq [-2, 2]$

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$x^2-2x^2-8 = (x^2-4)(x^2+2) = (x-2)(x+2)(x^2+2)$

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

الف) $f(n) = \sqrt{x(n^2-1)} \Rightarrow x(n^2-1) > 0 \Rightarrow \frac{-1}{-1} + \frac{0}{0} - \frac{1}{-1} + \dots \Rightarrow [-1, 0] \cup [1, +\infty)$

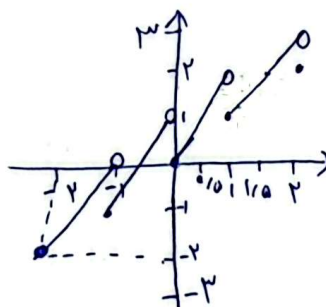
ب) $f(n) = \sqrt{|n-1|-2n^2} \Rightarrow |n-1|-2n^2 > 0 \Rightarrow \begin{cases} n > 2 \Rightarrow n-1-2n^2 > 0 \Rightarrow \Delta < 0 \Rightarrow \text{ریشه ندارد} \Rightarrow \mathbb{R} \\ n < 2 \Rightarrow -n+1-2n^2 > 0 \Rightarrow 2n^2+n-1 < 0 \Rightarrow \Delta = b^2-4ac = 9 \\ -b \pm \sqrt{\Delta} = \frac{-1 \pm 3}{2} = \frac{1}{2} \text{ و } -2 \end{cases}$

$y = \frac{1}{|n-1|-k} \Rightarrow D_f = \mathbb{R} - \{\text{ریشه منفرجه}\} \Rightarrow ||n-1|-1-k \neq 0 \Rightarrow ||n-1|-1| \neq k$

$\begin{cases} |n-1|=k \rightarrow |n-1|=k+1 \rightarrow n=2 \pm (k+1) \\ -(n-1)=k \rightarrow -n+1=k \rightarrow n=2 \pm (1-k) \end{cases} \Rightarrow k=1 \rightarrow n=0 \text{ و } n=2$

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

$n-2$	-1	0	1	2	0/0
y	-2	-1	0	1	2



در حالت اول $a=1$ و $b=1$

با ضرب x^2 در $f(x)$ و x در $f(x)$ داریم:

$$f(x) = \frac{x^2 - 14x + 3}{x + a} + b \rightarrow \text{با ضرب } x^2 \rightarrow \text{با ضرب } x$$

یعنی تابع $g(x)$ بدقی جواب همان خواهد بود.

۲ عدد فرضه را در نظر می گیریم.

$\begin{cases} n=1 \Rightarrow 1 = \frac{1-14+3}{1+a} + b \Rightarrow 1 = \frac{0}{1+a} + b \Rightarrow \boxed{b=1} \\ n=2 \Rightarrow \frac{4-28+3}{2+a} + 1 = 2 \Rightarrow \frac{-1}{2+a} = 1 \Rightarrow \cancel{2+a} = -1 \Rightarrow \boxed{a=-3} \Rightarrow a-b = -3-1 = -4 \end{cases}$

$$f(n) = \begin{cases} \frac{x^{n+1} + y^{n+1} - x - y}{x^{n+1} - 1} & ; n \neq \pm 1 \\ \frac{a^{n+1} + b^{n+1}}{a^{n+1} + b^{n+1}} & ; n = \pm 1 \end{cases}$$

$$g(n) = x + c \rightarrow g(n) = f(n)$$

$$x=0 \rightarrow \begin{cases} g(0) = 0 + c \\ f(0) = \frac{0+0-1}{0-1} = \frac{-1}{-1} = 1 \end{cases} \Rightarrow c=1$$

$$x=1 \rightarrow \begin{cases} g(1) = 1 \\ f(1) = \frac{a+1}{1+b} \end{cases} \Rightarrow \frac{a+1}{1+b} = 1$$

$$x=-1 \rightarrow \begin{cases} g(-1) = 1 \\ f(-1) = \frac{-a+1}{-1+b} \end{cases} \Rightarrow \frac{1-a}{b-1} = 1 \Rightarrow 1-a=b-1 \Rightarrow a+b=2$$

$$\frac{a+1}{1+b} = 1 \rightarrow a+1 = 1+b \Rightarrow a = b$$

$$a+1 = a+1 \Rightarrow b = 1$$

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

$$a = 1, b = 1$$

$f(n) = \sqrt{\kappa n - \kappa a} + \kappa - 1 \rightarrow \kappa n - \kappa a \gg 0 \rightarrow \kappa n \gg \kappa a \rightarrow n \gg \frac{\kappa a}{\kappa}$
 $g(n) = \sqrt{b - \kappa n} + \kappa k \rightarrow \kappa n (b \rightarrow n \kappa \frac{b}{\kappa})$
 $f - g \{ (19K) \} \rightarrow \text{در دو حالت اول و دوم} \Rightarrow \frac{b}{\kappa} = 1 \rightarrow b = \kappa$
 $\frac{\kappa a}{\kappa} = 1 \rightarrow a = \frac{\kappa}{\kappa}$
 $\kappa a - \frac{b}{\kappa} - \kappa = ? \Rightarrow \kappa \times \frac{\kappa}{\kappa} - \frac{\kappa}{\kappa} - (-1) = 1$
 $\kappa \kappa - \kappa \kappa = \kappa \Rightarrow \kappa = 1$

$$f(m) = \sqrt{m-n} + n \rightarrow m-n > 0 \rightarrow n \leq m \xrightarrow{*} n \leq v \Rightarrow \boxed{m=v}$$

$$g(v) = \sqrt{v-n} \rightarrow v-n > 0 \rightarrow n < v \rightarrow D_g = [-1, \infty)$$

$$D_{f \circ g} = [-1, v]^*$$

$$f \circ g(v) = 4\sqrt{v} \rightarrow \sqrt{v-n} + n - \sqrt{1} \Rightarrow \sqrt{v-n} - \sqrt{1} = 4\sqrt{v} \rightarrow v-n = 16v$$

$$m+n = ? \quad m+n \rightarrow v + 16\sqrt{v-n} = 25 + 16\sqrt{v-n} \quad \boxed{n = 16\sqrt{v-n}}$$

[illegible]