

$$f(n) = (n+1)^5 + (n-1)^5 + mn^5 + mn + mn \rightarrow \text{بعضی}$$

$$K=10, P=-11, h=\xi, m=-10 \quad (1)$$

$$S(n) = \{(\xi, m), (h, P+1), (P+5, -1), (-9, P+K)\} \rightarrow \text{بعضی}$$

$$K+P+h=m$$

$$f(n) = n^5 + 1 + 2n + 9n^5 + 1 - 5n + mn^5 + mn + mn \rightarrow 10n^5 - 5n + 5 = -mn^5 - mn - mn$$

$$m=-10, n=\xi, P+1=m \rightarrow P=-11 \quad P+K=-1 \rightarrow K=10$$

$$\text{الف) } \sqrt{\frac{n-5}{n^5-5n^5-1}} \quad n^5=t \rightarrow t^5-5t-1=(t-5)(t+1) \rightarrow -5, \xi=t$$

$$t>0 \rightarrow t=5 \checkmark \quad t=-5 \times \rightarrow t=5 \rightarrow n^5=5 \rightarrow n=\pm \sqrt[5]{5} \rightarrow \text{ریشه های انجی}$$

$$n-5 \rightarrow +5 = \frac{5}{n}$$



$$(-5, +\infty) \\ -\{5\}$$

$$\text{ب) } f(n) = \frac{n^5+1}{5-2[-n]} \rightarrow 5-2[-n] \neq 0 \rightarrow 5 \neq 2[-n]$$

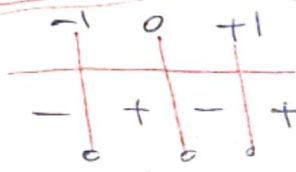
$$5=2[-n] \rightarrow 2 \leq n < 5 \rightarrow -5 < n \leq -2 \quad \{5 \neq 2[-n]\} \quad D_f = R - (-5, -2]$$

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$$\text{الف) } f(n) = \frac{\sqrt{n(n^5-1)}}{\sqrt{|n|+n}} \rightarrow n(n+1)(n-1) > 0 \rightarrow$$

$$\sqrt{|n|+n} \rightarrow |n|+n > 0 \rightarrow R^+$$

$$1 \leq n \rightarrow [1, +\infty) \rightarrow [1, +\infty)$$

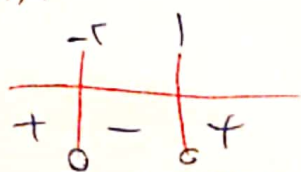


$$[0, +\infty) \\ \cup \\ [-1, 0]$$

$$\text{ب) } f(n) = \frac{\sqrt{|n-5|-n^5}}{|n|-1}$$

$$|n-5| > n^5 \rightarrow \begin{cases} n > 5 \rightarrow n^5 - n + 5 \leq 0 \\ n^5 < 5 \rightarrow n^5 + n - 5 \leq 0 \end{cases}$$

$$n \neq 1 \rightarrow n \neq -1$$



$$(n+5)(n-1) \neq \leq 0 \rightarrow \Delta < 0 \rightarrow \text{ریشه های انجی}$$

$$\rightarrow n \in [-5, +1]$$

$$D_{f(n)} = [-5, +1] - \{-1, 1\}$$

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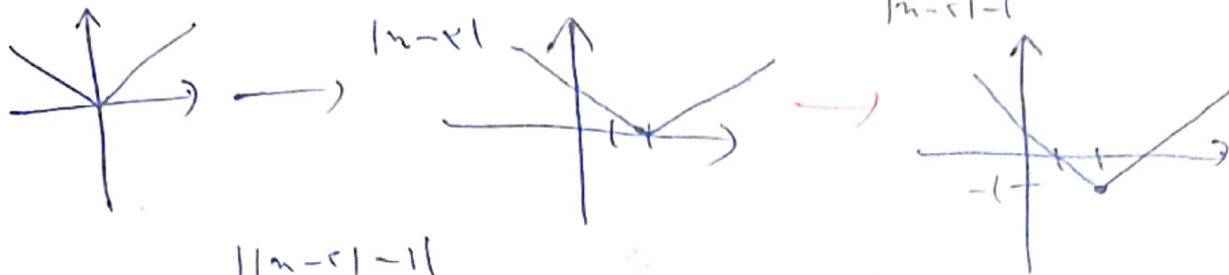
$$y = \frac{1}{|n-5|-1-k} \rightarrow \text{سعر مشترك} \quad K=?$$

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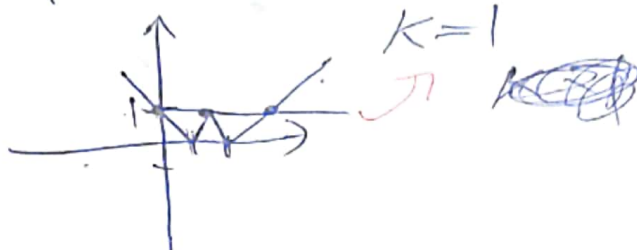
$$K=1$$

$$|n-5|-1-k=0 \rightarrow |n-5|-1=k$$

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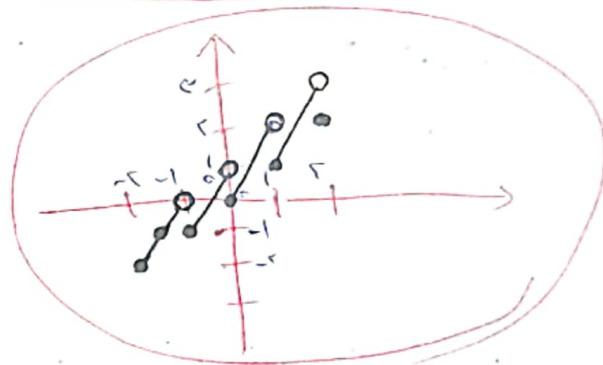


$$|n-5|-1$$



$$y = 2n - [n] \rightarrow [-5, 5] \text{ or } [6, 11]$$

$$\begin{aligned} -5 &\rightarrow -5 & 1 &\rightarrow 1 \\ -1, 8 &\rightarrow -1 & 2 &\rightarrow 2 \\ -1 &\rightarrow -1 & & \\ 0 &\rightarrow 0 & & \end{aligned}$$



$$f(n) = \frac{n^2 - 5n + 5}{n+a} + b \quad f(n) = \frac{(n-5)(n-1)}{(n+a)} + b = n \rightarrow n+a = n-5$$

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$$f(n) = \begin{cases} \frac{n^c + \sqrt{n} - n - 5}{n^5 - 1} ; n \neq \pm 1 & g(n) = n + c \\ \frac{an + 5}{n + b} ; n = \pm 1 \end{cases}$$

(✓)

$$\frac{an + 5}{n + b} = n + 5 \xrightarrow{n=1} \frac{a+5}{b+1} = c$$

$$\xrightarrow{n=-1} \frac{-a+5}{b-1} = 1 \rightarrow 5-a = b-1 \rightarrow b = 6-a$$

$$a+5 = a - 5a + 6 \rightarrow 5a = 1 \rightarrow a = \frac{1}{5} \xrightarrow{b=6-a} b = \frac{29}{5}, c = \frac{1}{5}$$

$$c + b = \frac{1}{5} + \frac{29}{5} = 6$$

$$b + c = \frac{29}{5} + \frac{1}{5} = 6$$

$$f(n) = \sqrt{\varepsilon n - ca} + k - 1 \quad g(n) = \sqrt{b - \varepsilon n} \quad f - g = \{(1, k)\}$$

$$ca - \frac{b}{\varepsilon} - k = ?$$

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

$$\alpha = \beta$$

$$g(1) = \sqrt{b - \varepsilon} = 0 \rightarrow b = \varepsilon$$

$$g(1) = \sqrt{b - \varepsilon}$$

$$f(1) = \sqrt{\varepsilon - ca} = 0 \rightarrow a = \frac{\varepsilon}{c}$$

$$c\left(\frac{\varepsilon}{c}\right) - \frac{\varepsilon}{\varepsilon} - k = ?$$

$$f(1) - g(1) = k - 5 - k = k \rightarrow k = -5 \rightarrow k = -1$$

$$\varepsilon - \varepsilon + 1 = 0$$

$$f(n) = \sqrt{m - n} + n \quad g(n) = \sqrt{n + 5} \quad D_{f \times g} = [-1, \sqrt{5}] \quad f - g(n) = 9\sqrt{5}$$

$m + n = ? \quad n - m > 0 \rightarrow m < n \rightarrow m = \sqrt{5}$

$$f(n) - g(n) = 9\sqrt{5} \rightarrow (\sqrt{m - n} + n) - \sqrt{n + 5} = 9\sqrt{5} \rightarrow \sqrt{m - n} + n = 9\sqrt{5} + \sqrt{n + 5}$$

$$f(n) = \sqrt{m - n} + n = 5 + n$$

$$m + n = 9\sqrt{5} - 5 + \sqrt{n + 5} = 10\sqrt{5} - 5$$

$$g(n) = \sqrt{5} = 5\sqrt{5}$$

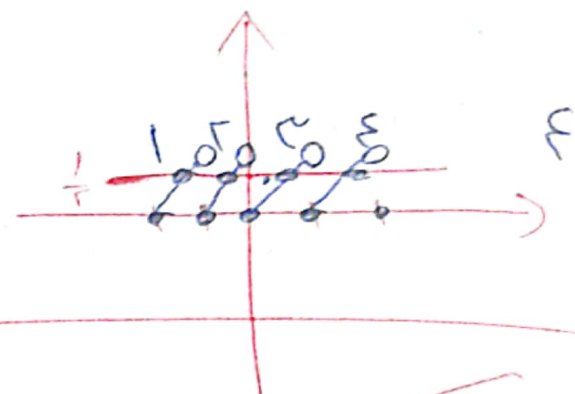
$$10\sqrt{5} - 5$$

$$y = \frac{1}{n} \sum_{i=1}^n (n - [n_i]) = \frac{1}{n} \rightarrow (n - [n_i]) = \frac{1}{n}$$

جواب 6 در بازه $[-0.5, 0.5]$

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دوازدهم سپهر

بردا جانوری