

سازمانی - تکلیف شماره ۱ - روز دهم رخترب

۱- $y^3 - 2n^2 = 2n - 1 \Rightarrow y^3 = 2n^2 + 2n - 1 \Rightarrow$ الف

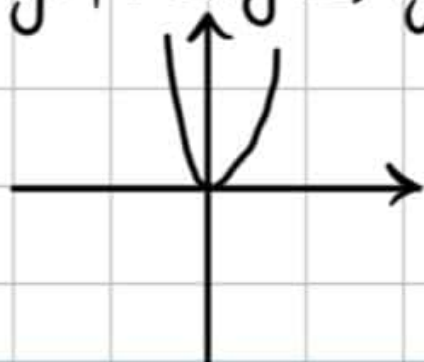
$y_1^3 = 2n_1^2 + 2n_1 - 1$
 $y_2^3 = 2n_2^2 + 2n_2 - 1$ $\xrightarrow{n_1=n_2} y_1^3 = y_2^3$ تابع است ✓

ب) $n \cos y = y \cos n \rightarrow$ مثال نقض $n = \frac{\pi}{2} \rightarrow i \neq n = \frac{\pi}{2}$
 می تواند حقادر مختلف از جمله $\frac{\pi}{2}, \frac{3\pi}{2}, \dots$ باشد.

ج) $\frac{n+y}{2} = \sqrt{ny} \Rightarrow n+y = 2\sqrt{ny}$ میتوان $n^2 + y^2 + 2ny = 4ny$
 $\Rightarrow n^2 + y^2 - 2ny = 0 \Rightarrow (n-y)^2 = 0 \rightarrow$ تابع است

د) $n y^2 + 2n - y^3 - 2y = 0 \rightarrow n(y^2 + 2) - y(y^2 + 2) = 0$
 $(y^2 + 2)(n - y) = 0 \Rightarrow n = y$ تابع است.
 همواره مثبت

الف) $|y| + n^2 = 2y \Rightarrow 2y - |y| = n^2 \rightarrow y \geq 0 \rightarrow 2y - y = y = n^2$
 ب) $y \leq 0 \rightarrow 2y + y = 3y = n^2$
 تابع است.



ب) $[y] + [n] = 1 \rightarrow i \neq n = 0$ می تواند در بازه (۲) قرار دهد
 کبرد $\Rightarrow$ تابع نیست.

$$f(n) = \begin{cases} 2n^2 - b & |n-1| \geq 2 \\ a + 2n & 0 \leq n \leq 2 \end{cases}$$

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$$|n-1| \geq 2 \Rightarrow n-1 \geq 2 \text{ or } n-1 \leq -2 \Rightarrow n \geq 3 \text{ or } n \leq -1$$

$$\text{if } n=2 \Rightarrow 2n^2 - b = a + 2n \Rightarrow 4 - b = a + 4 \Rightarrow \underline{a+b=0}$$

$$f(n) = \sqrt{a-bn-n^2} \quad [b, a]$$

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$$\begin{aligned} S &= -\frac{b}{a} = \frac{b}{-1} = -b = a+b \Rightarrow a = -2b \\ P &= \frac{c}{a} = \frac{a}{-1} = -a = ab \Rightarrow b = -1 \end{aligned} \quad \left. \vphantom{\begin{aligned} S \\ P \end{aligned}} \right\} \Rightarrow a=2$$

$$a+b = 2 + (-1) = 1$$

$$\frac{2}{\sqrt{an^2+bn+c}} \quad (-\infty, 2) \quad \frac{2}{\frac{2}{2} - 1}$$

-۵ چون تغییر علامت

دارد همیشه ضرایب نسبت $bn+c > 0 \leq a=0 < 0$

$$\text{if } n=2 \Rightarrow f(n)=0 \Rightarrow 2b+c=0 \Rightarrow c=-2b$$

$$3a+c-3|b|=0 \Rightarrow 2b-(-3b)=b$$

$b < 0 \leftarrow m$ منفی است

$$\sqrt{\frac{r_n+r}{n+b}+a} \quad (r, +\infty)$$

$$\frac{r_n+r}{n+b}+a \geq 0 \Rightarrow$$

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$$\frac{r_n+r+a(n+b)}{n+b} \geq 0 \Rightarrow n \neq -b$$

$$r_n+r+a(n+b) = n(r+a) + r+ab \Rightarrow a = -r$$

$$n+b = n-r \Rightarrow \underline{b=r}$$

$$n = \frac{-r-ab}{r+a}$$

الف) $y = \sqrt{n^3-n}$ $n^3-n \geq 0$ $n(n^2-1) \geq 0$

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$$\frac{-1}{-} + \frac{0}{+} - \frac{1}{-} + \frac{1}{+} \quad D_f = [-1, 0] \cup [1, +\infty)$$

ب) $\frac{1}{\sqrt{|n|-1}} \Rightarrow |n|-1 > 0 \Rightarrow |n| > 1 \Rightarrow n > 1$

$$D_f = (-\infty, -1) \cup (1, +\infty) \quad n < -1$$

الف) $\sqrt{\frac{1}{|n|-[n]}} \rightarrow \frac{1}{|n|-[n]} \geq 0, |n| \neq [n]$

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$$\Rightarrow D_f = \mathbb{R} - \mathbb{Z}$$

ب) $\sqrt{x} + \sqrt{y} = 9 \quad x \geq 0 \text{ و } y \geq 0 \Rightarrow \sqrt{y} = 9 - \sqrt{x} \Rightarrow$

$$9 - \sqrt{x} \geq 0 \Rightarrow \sqrt{x} \leq 9 \xrightarrow{\text{توان}} x \leq 81 \Rightarrow D_f = [0, 81]$$

$$\sqrt{\left[r_n - \frac{1}{r}\right] + \left[r_n + \frac{r}{r}\right]} \Rightarrow \underbrace{\left[r_n - \frac{1}{r}\right] + \left[r_n + \frac{r}{r}\right]}_{r_n - \frac{1}{r} + r - r} > 0 \Rightarrow$$

$$\left[r_n + \frac{r}{r}\right] - r + \left[r_n + \frac{r}{r}\right] > 0 \Rightarrow r \left[r_n + \frac{r}{r}\right] > r \Rightarrow$$

$$\left[r_n + \frac{r}{r}\right] > 1 \Rightarrow r_n + \frac{r}{r} > 1 \Rightarrow r_n > \frac{1}{r} \Rightarrow n > \frac{1}{r}$$

$$D_f = \left[\frac{1}{r}, +\infty\right)$$

$$y = \sqrt{1 - \log(r_n - a)} \quad (b, c] \quad r_n - a > 0 \Rightarrow r_n > a \Rightarrow$$

$$n > \frac{a}{r} \quad 1 - \log(r_n - a) > 0 \Rightarrow \log(r_n - a) < 1 \Rightarrow$$

$$r_n - a < 10 \Rightarrow r_n < a + 10 \Rightarrow n < \frac{a + 10}{r} \Rightarrow \frac{a}{r} < n < \frac{a}{r} + \frac{10}{r}$$

$$\Rightarrow c - b = \frac{a}{r} + \frac{10}{r} - \frac{a}{r} \Rightarrow c - b = \frac{10}{r}$$