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کالیف شمار ۳ کلاس یازدهم سبیل شنبه

۲. انتهای عالی نوشتار

الف) $2n^3 + 3n^2 - 11n + 3 = 0$ $\Rightarrow (n-1)(2n^2 + 5n - 3) = 0 \Rightarrow (n-1)(2n-1)(n+3) = 0$
 $n = 1, \frac{1}{2}, -3$
 $D = R - \{1, \frac{1}{2}, -3\}$
 ب) $2n^3 + 9n^2 + 10n + 3 = 0 \Rightarrow (n+1)(n+3)(2n+1) = 0$
 $n = -1, -3, -\frac{1}{2}$
 $D = R - \{-1, -3, -\frac{1}{2}\}$

الف) $n^3 - 2n^2 + 2n - 1 = 0 \Rightarrow (n-1)(n^2 - n + 1) = 0$
 $n = 1$
 $D = R - \{1\}$
 ب) $\frac{n+3}{(n-1)(n^2 - n + 1)} \geq 0$
 $\frac{n+3}{n-1} \geq 0 \Rightarrow n \leq -3 \text{ یا } n > 1$
 $D = (-\infty, -3] \cup (1, +\infty)$

آر $n \geq 1$
 $|n-1| = n-1$
 $n^2 - 0|n-1| - 2n + 0 = 0 \Rightarrow n^2 - 2n = 0 \Rightarrow n(n-2) = 0$
 $n \neq 0, 2$
 آر $n < 1$
 $|n-1| = 1-n$
 $n^2 - 0|n-1| - 2n + 0 = 0 \Rightarrow n^2 - 2n = 0 \Rightarrow n(n-2) = 0$
 $n \neq 0, 2$
 $D = R - \{0, 2\}$
 ب) $[n]^2 - 2[n] - 3 = ([n]-3)([n]+1)$
 $[n] \neq 3, -1$
 $[n] = -1 \Rightarrow -1 \leq n < 0$
 $[n] = 3 \Rightarrow 3 \leq n < 4$
 $D = (-\infty, -1) \cup [0, 3) \cup [4, +\infty)$

الف) $\sqrt{[-n]-2} = y$ $[-n]-2 \geq 0 \Rightarrow [-n] \geq 2 \Rightarrow -n \geq 2 \Rightarrow n \leq -2$
 $D = (-\infty, -2]$

الف) $[n + \frac{1}{p}] = [n - \frac{1}{p} + 1] = [n - \frac{1}{p}] + 1$
 $[n - \frac{1}{p}] \geq 0 \Rightarrow n \geq \frac{1}{p}$
 $D = [\frac{1}{p}, +\infty)$

ب) $n - \frac{1}{p} = t$ $[t] + [-t]$
 $n - \frac{1}{p} \in \mathbb{Z}$
 $D = \{ \frac{1}{p} + n \mid n \in \mathbb{Z} \}$

فقط زمانی صفر می شود که عدد صحیح باشد

$$\begin{aligned} \cos n \neq 0 \quad \tan n + 1 \neq 0 \\ \sin n \neq 0 \quad \tan n \neq -1 \end{aligned} \Rightarrow D = \mathbb{R} - \left\{ \left(\frac{k\pi}{2} \mid k \in \mathbb{Z} \right) \cup \left\{ -\frac{\pi}{2} + k\pi \mid k \in \mathbb{Z} \right\} \right\} \quad (\text{الف})$$

$$1 - r \sin^2 n \geq 0 \quad \sin^2 n \leq \frac{1}{r} \quad |\sin n| \leq \frac{1}{\sqrt{r}} \quad (ج)$$

$$D = \left\{ \left(\left[k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2} \right] \cup \left[k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right] \mid k \in \mathbb{Z} \right) \right\}$$

$$\begin{aligned} r \sin n - 1 \geq 0 \\ \sin n \geq \frac{1}{r} \end{aligned} \quad D = \left\{ \frac{\pi}{2} + k\pi, \frac{3\pi}{2} + k\pi \mid k \in \mathbb{Z} \right\} \quad (\text{ب})$$

$$y = \sqrt{1 - r \cos n}$$

$$1 - r \cos n \geq 0 \Rightarrow \cos n \leq \frac{1}{r} \quad D = \left\{ \frac{\pi}{r} + k\pi, \frac{2\pi}{r} + k\pi \mid k \in \mathbb{Z} \right\}$$

$$\begin{aligned} -1 \leq n^2 + r n + 1 \leq 1 \quad n^2 + r n + 1 \geq -1 \\ n^2 + r n + 1 \leq 1 \quad n^2 + r n + 1 \geq 0 \quad (n+1)(n+r) \geq 0 \\ n^2 + r n \leq 0 \quad n(n+r) \leq 0 \quad -r \leq n \leq 0 \quad n \leq -1 \quad n \geq -1 \end{aligned} \quad D = [-r, -1] \cup [-1, 0]$$

$$\begin{aligned} -1 \leq \cos y \leq 1 \\ 0 \leq \sqrt{1 - r \cos y} \leq 1 \end{aligned} \quad 0 \leq 1 - r \cos y \leq 1 \quad n \leq \frac{\pi}{r} \quad n \geq r \quad D = \left[r, \frac{\pi}{r} \right]$$

$$\begin{aligned} n > 0 \quad 1 - \log_r n > 0 \quad \log_r n < 1 \quad n < r^1 \Rightarrow n < r \\ \text{استدلال} \end{aligned} \quad D = (0, r)$$

$$\begin{aligned} n > 0 \quad 1 - \log_{\frac{1}{r}} n > 0 \quad \log_{\frac{1}{r}} n < 1 \\ 0 < \frac{1}{r} < 1 \quad n > \left(\frac{1}{r} \right)^r \Rightarrow n > \frac{1}{r} \end{aligned} \quad D = \left(\frac{1}{r}, +\infty \right)$$

$$\begin{aligned} r^{n-n^r} - 1 > 0 \quad -n^r + r n - r^2 > 0 \quad D = [1, r] \\ r^{n-n^r} > 1 \quad r n - n^r > r^2 \quad -(n-1)(n-r) \geq 0 \end{aligned}$$

$$D = \left\{ \frac{r w - a}{r - r w} \mid w = 0, 1, 2, \dots \right\}$$

$$\frac{r n + a}{r n + r} \in W \quad w = 0, 1, 2, \dots$$

$$n = \frac{r w - a}{r - r w}$$

$$n(r - r w) = r w - a$$

$$r n + r \neq 0 \quad r n + a = w(r n + r) \Rightarrow r n + a = r w n + r w$$