

نام و نام خانوادگی: رتبه: رشته: پاسخنامه تشریحی تکلیف شماره ۳ کلاس: یازدهم ریاضی A

۱۸/۵ اصل های نه نوشته با بابت مطالعه کن

الف) $\frac{n+3}{2n^2+3n-1}$ $\rightarrow D_f = \mathbb{R} - \{-\frac{1}{2}, \frac{1}{3}\}$ $\frac{2n^2+3n-1}{2n^2+3n-1} \rightarrow (n-1)(n-\frac{1}{2})(n+3)$

ب) $\frac{n+3}{2n^2+9n^2+1 \cdot n+3} = \frac{n+1}{(n+1)(2n^2+7n+3)}$ $n = \frac{-7 \pm \sqrt{49-24}}{4} = \frac{-7 \pm 5}{4} \rightarrow -\frac{1}{4}, -\frac{3}{2}$ $D_f = \mathbb{R} - \{-\frac{1}{4}, -\frac{3}{2}\}$

الف) $\frac{n+3}{n^3-2n^2+2n-1} = \frac{n+3}{(n-1)(n^2-n+1)}$ $\rightarrow D_f = \mathbb{R} - \{1\}$ $\frac{n^3-2n^2+2n-1}{n^3-2n^2+2n-1} \rightarrow \frac{n^3-2n^2+2n-1}{(n-1)(n^2-n+1)}$ $\rightarrow D_f = (-\infty, 1) \cup (1, +\infty)$

۲ $n > 1 \rightarrow n^2 - \omega n + \omega - 2n + \omega \Rightarrow \frac{n^2 - 7n + 10}{(n-2)(n-5)}$ $\Rightarrow (1, +\infty) - \{2, 5\}$ $n \leq 1 \rightarrow n^2 + \omega n - \omega - 2n + \omega \Rightarrow \frac{n^2 + 3n}{n(n+3)} \Rightarrow -3$ $\Rightarrow (-\infty, 1] - \{-3\}$ $D_f = \mathbb{R} - \{-3, 2, 5\}$

الف) $y = \sqrt{[-x]-2} \rightarrow [-x]-2 \geq 0 \rightarrow [-x] \geq 2 \rightarrow (-\infty, -2] = D_f$

ب) $y = \frac{\omega n^2+4}{[n]^2-2[n]-3} \Rightarrow [n] \neq 3 \Rightarrow [3, +\infty)$ $[n]^2-2[n]-3 = ([n]-3)([n]+1) \Rightarrow [n] \neq -1 \Rightarrow [-1, 0)$ $D_f = \mathbb{R} - [3, +\infty) \cup [-1, 0)$

الف) $\sqrt{\frac{[x-\frac{1}{3}]}{z} + \frac{[x+\frac{2}{3}]}{z+1}} \rightarrow [z]+[z+1] \geq 0 \rightarrow 2[z] \geq -1 \rightarrow [z] \geq -\frac{1}{2}$ $z \rightarrow [0, +\infty) \rightarrow n = [\frac{1}{3}, +\infty)$ $[z] \geq -\frac{1}{2} \rightarrow z \geq 0 \rightarrow n - \frac{1}{3} \geq 0 \rightarrow n \geq \frac{1}{3}$ $\rightarrow D_f = \{n | n \in \mathbb{Z} - \frac{1}{3}\}$

$$y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \tan x \neq -1 \rightarrow D_f = \mathbb{R} - \{k\pi - \frac{\pi}{4}, k\pi, k\pi + \frac{\pi}{4}\}$$

من در نظر گرفتم که $\cot$ و $\tan$ در ابتدا به تعریف شوند پس هر جا که تعریف نمی شدند حذف کردم

۱,۵

$$y = \sqrt{1 - 4 \sin^2 x} \rightarrow 1 - 4 \sin^2 x \geq 0 \rightarrow \frac{1}{4} \geq \sin^2 x \rightarrow |\sin x| \leq \frac{1}{2} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$$

انتخاب بازه نباید از ابتدای بازه کوچک تر باشد!

$[k\pi - \frac{\pi}{6}, k\pi + \frac{\pi}{6}] = D_f$

$$y = \sqrt{2 \sin x - 1} \rightarrow 2 \sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{2} \rightarrow D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$$

$$y = \sqrt{1 - 2 \cos x} \rightarrow 1 - 2 \cos x \geq 0 \rightarrow \cos x \leq \frac{1}{2} \rightarrow D_f = [2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}]$$

$$\arcsin(x^2 + 3x + 1) \rightarrow -1 \leq x^2 + 3x + 1 \leq 1 \rightarrow x^2 + 3x \leq 0 \rightarrow x(x+3) \leq 0 \rightarrow x \in [-3, 0]$$

$\cap \rightarrow [-3, -2] \cup [-1, 0] = D_f$

$$\cos y = \sqrt{5 - 2x} \rightarrow -1 \leq \sqrt{5 - 2x} \leq 1 \rightarrow 0 \leq \sqrt{5 - 2x} \leq 1 \rightarrow 0 \leq 5 - 2x \leq 1 \rightarrow -5 \leq -2x \leq -4 \rightarrow \frac{5}{2} \leq x \leq 2$$

$$y = \log_r(1 - \log_r x) \rightarrow x > 0 \rightarrow 1 - \log_r x > 0 \rightarrow \log_r x < 1 \rightarrow x < r \rightarrow 0 < x < r = D_f$$

$$y = \log_r \left(\frac{1 - \log_{\frac{1}{r}} x}{1 - \log_{\frac{1}{r}} \frac{1}{r}} \right) \rightarrow x > 0 \rightarrow 1 - \log_{\frac{1}{r}} x > 0 \rightarrow \log_{\frac{1}{r}} x < 1 \rightarrow x < \frac{1}{r} \rightarrow 0 < x < \frac{1}{r} = D_f$$

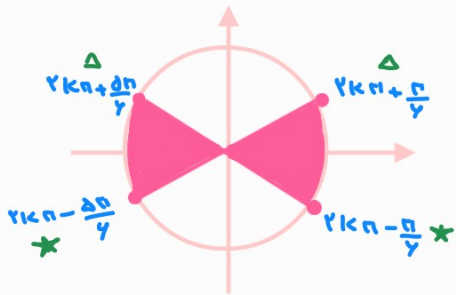
$$\sqrt{2^{x-x^2} - 1} \rightarrow 2^{x-x^2} - 1 \geq 0 \rightarrow 2^{x-x^2} \geq 1 \rightarrow x - x^2 \geq 0 \rightarrow -x^2 + x - 0 \geq 0 \rightarrow -(x-3)(x-1) \geq 0 \rightarrow x \in [1, 3]$$

$$\left(\frac{r_n + \omega}{r_n + \varepsilon} \right)! \rightarrow n \neq -2 \mid \frac{r_n + \omega}{r_n + \varepsilon} \in \mathbb{N} \rightarrow r_n x + \varepsilon \omega = r_n + \omega$$

$D_f = \{x \mid x = \frac{\omega - \varepsilon k}{r_k - r}, k \in \mathbb{N}\}$

۵ - الف) $\left\lfloor n - \frac{1}{r} \right\rfloor + \left\lfloor n + \frac{r}{r} \right\rfloor \geq 0 \xrightarrow{+1} \left\lfloor n - \frac{1}{r} \right\rfloor + 1 + \left\lfloor n + \frac{r}{r} \right\rfloor \geq 1$
 $\left\lfloor n + \frac{r}{r} \right\rfloor + \left\lfloor n + \frac{r}{r} \right\rfloor \geq 1 \rightarrow \left\lfloor n + \frac{r}{r} \right\rfloor \geq \frac{1}{2}$ اولین عدد صحیح بزرگتر از $\frac{1}{2}$ برابر یک است! $n + \frac{r}{r} \geq 1$
 $n \geq \frac{1}{r} \rightarrow D_f = \left[\frac{1}{r}, +\infty \right)$

۶ - ب) $1 - r \sin^2 n \geq 0 \rightarrow r \sin^2 n \leq 1 \rightarrow \sin^2 n \leq \frac{1}{r} \rightarrow -\frac{1}{r} \leq \sin n \leq \frac{1}{r}$



$\rightarrow D_f = \left[k\pi - \frac{\pi}{r}, k\pi + \frac{\pi}{r} \right]$

۹ - ب) $y = \log_r (1 - \log^{\frac{1}{r}} \frac{1}{r}) \rightarrow \log^{\frac{1}{r}} \frac{1}{r} \rightarrow n > 0$

$\hookrightarrow 1 - \log^{\frac{1}{r}} \frac{1}{r} > 0 \rightarrow \log^{\frac{1}{r}} \frac{1}{r} < 1$ مناسب (۱، ۰) $\rightarrow n > \frac{1}{r}$

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