

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۳۰۰ کلاس: ... از: ...

الف) $\frac{x+3}{2x^3+2x^2-11x+3} \Rightarrow 2x^3+2x^2-11x+3=0 \xrightarrow{\text{جمع ضرایب}} (x-1)(2x^2+4x-3)=0$
 $(x-1)(x-1)(x+\frac{3}{2})=0$
 $D_f = \mathbb{R} - \{1, -\frac{3}{2}, \frac{1}{2}\}$

ب) $\frac{x+3}{2x^3+9x^2+10x+3} \Rightarrow 2x^3+9x^2+10x+3=0 \xrightarrow{\text{جمع ضرایب}} (x+1)(2x^2+7x+3)=0$
 $(x+1)(x+\frac{1}{2})(2x+3)=0$
 $D_f = \mathbb{R} - \{-1, -\frac{3}{2}, -\frac{1}{2}\}$

الف) $\frac{x+3}{x^3-2x^2+2x-1} \Rightarrow x^3-2x^2+2x-1=0 \xrightarrow{\text{جمع ضرایب}} (x-1)(x^2-x+1)=0$
 $(x-1)(x^2-x+1)=0$
 $D_f = \mathbb{R} - \{1\}$

ب) $\frac{x+3}{(x-1)(x^2-x+1)} \xrightarrow{\Delta < 0} \frac{-3}{1} \quad D_f = (-\infty, -3] \cup (1, +\infty)$

$x^2-5|x-1|-2x+5=0$
 $(1, +\infty) - \{2, 5\}$
 $\begin{cases} x-1 \geq 0 \Rightarrow x \geq 1 \Rightarrow x^2-5(x-1)-2x+5 = x^2-5x+5-2x+5 = x^2-7x+10 = (x-2)(x-5) \\ x-1 \leq 0 \Rightarrow x \leq 1 \Rightarrow x^2+5x-5-2x+5 = x^2+3x = x(x+3) \end{cases}$
 $D_f = \mathbb{R} - \{2, 5, -3\}$

الف) $[-x]-2 \geq 0 \quad [-x] \geq 2 \quad x \in (-\infty, -2] \quad D_f = (-\infty, -2]$

ب) $[x]^2-2[x]-3=0 \quad ([x]-3)([x]+1)=0$
 $[x]=3 \Rightarrow x \in [3, 4)$
 $[x]=-1 \Rightarrow x \in [-1, 0)$
 $D_f = \mathbb{R} - ([3, 4) \cup [-1, 0))$

الف) $[x-\frac{1}{3}] + [x+\frac{1}{3}] \geq 0 \Rightarrow [z] + [z+1] \geq 0 \Rightarrow 2[z] \geq -1 \quad [z] \geq -\frac{1}{2}$
 $z \rightarrow [0, +\infty)$
 $x = [\frac{1}{3}, +\infty)$

ب) $[x-\frac{1}{3}] + [\frac{1}{3}-x] \geq 0 \xrightarrow{\text{دراغ}} [x] + [-x] \geq 0 \quad D_f = \{x \mid x \in \mathbb{Z} - \frac{1}{3}\}$

$$\text{الف) } \frac{\cos x + 1}{\sin x} + \frac{\sin x}{\cos x + 1} = \frac{\cos x + \sin x}{\sin x + \cos x} = \frac{\cos x (\cos x + \sin x)}{\sin x (\cos x + \sin x)} = 0$$

$$Df = \mathbb{R} - \left\{ k\pi, k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2} \right\} \quad x = k\pi \quad \cos x = -\sin x \quad x = k\pi - \frac{\pi}{2}$$

$$\text{ب) } 1 - \sqrt{\sin x} \geq 0 \quad \sqrt{\sin x} \leq 1 \quad \sin x \leq \frac{1}{4} \quad -\frac{1}{4} \leq \sin x \leq \frac{1}{4} \quad Df = \left[k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6} \right]$$

$$\text{الف) } \sqrt{\sin x} - 1 \geq 0 \quad \sqrt{\sin x} \geq 1 \quad \sin x \geq \frac{1}{4} \quad Df = \left[k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6} \right]$$

$$\text{ب) } 1 - \sqrt{\cos x} \geq 0 \quad \sqrt{\cos x} \leq 1 \quad \cos x \leq \frac{1}{4} \quad Df = \left[k\pi + \frac{\pi}{3}, k\pi + \frac{2\pi}{3} \right]$$

$$\text{الف) } -1 < x^2 + 3x + 1 < 1 \Rightarrow -1 < x^2 + 3x + 1 \Rightarrow (x+1)(x+2) > 0 \quad \begin{array}{c|ccc} & -2 & -1 & 0 & 1 \\ \hline & + & - & + & + \\ \hline \end{array} \quad (-\infty, -2) \cup (-1, +\infty)$$

$$Df = [-2, -1] \cup [0, +\infty)$$

$$\text{ب) } -1 < \cos y < 1 \Rightarrow -1 < \sqrt{a-2x} < 1 \Rightarrow 0 < (a-2x)^2 < 1 \quad \begin{array}{c|ccc} & -\frac{1}{2} & 0 & \frac{1}{2} & 1 \\ \hline & + & - & + & + \\ \hline \end{array} \quad \left[\frac{a-1}{2}, \frac{a+1}{2} \right]$$

$$\text{الف) } 1 - (\log_3 x)^2 > 0 \quad \log_3 x < 1 \quad \left. \begin{array}{l} x < 3 \\ x > 0 \end{array} \right\} \Rightarrow 0 < x < 3 \quad Df = \left[\frac{1}{3}, 3 \right]$$

مبتدئين هوالبت پين حبت ناماده عوض برسو

$$\text{ب) } 1 - \log_{\frac{1}{3}} x > 0 \quad \log_{\frac{1}{3}} x < 1 \quad \left. \begin{array}{l} x > 0 \\ x < \frac{1}{3} \end{array} \right\} \Rightarrow 0 < x < \frac{1}{3}$$

$$\log_{\frac{1}{3}} x < 1 \Rightarrow x > \frac{1}{3} \Rightarrow Df = \left(\frac{1}{3}, +\infty \right)$$

$$\text{الف) } y^{x^2-x^3} - 1 \geq 0 \quad y^{x^2-x^3} \geq y^3 \quad x^2-x^3 \geq 3 \Rightarrow (x-1)(x-3) \leq 0 \quad \begin{array}{c|ccc} & -1 & 1 & 3 & + \\ \hline & + & - & + & + \\ \hline \end{array} \quad [-1, 1] \cup [3, +\infty)$$

$$\text{ب) } \frac{3x+a}{2x+4} \in \mathbb{W} \quad x \in -\frac{4\mathbb{W}+a}{2\mathbb{W}-3} = \frac{-4\mathbb{W}+a}{2\mathbb{W}-3} \quad Df = \left\{ x \mid x = \frac{-4k+a}{2k-3}, k \in \mathbb{W} \right\}$$

سپاس از شما

۵ - الف) $\lfloor n - \frac{1}{r} \rfloor + \lfloor n + \frac{r}{r} \rfloor \geq 0 \xrightarrow{+1} \lfloor n - \frac{1}{r} \rfloor + 1 + \lfloor n + \frac{r}{r} \rfloor \geq 1$ [n+k = [n+k]

$\lfloor n + \frac{r}{r} \rfloor + \lfloor n + \frac{r}{r} \rfloor \geq 1 \rightarrow \lfloor n + \frac{r}{r} \rfloor \geq \frac{1}{2}$ اولین عدد صحیح بزرگتر از $\frac{1}{2}$ برابر یک است! $n + \frac{r}{r} \geq 1$

$n \geq \frac{1}{r} \rightarrow D_f = [\frac{1}{r}, +\infty)$

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

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

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