ارشیا شیربادی کلاس دهم سری A ۱۸:۳۰ - ۱۹:۳۰ شماره ۶

۱) الف) $\frac{x+2}{2x^3-10x^2+11x-5} = \frac{x+2}{(x-1)(2x^2-9x+5)}$ ز $\Delta = 81-40 = 41$

$\frac{9 \pm \sqrt{41}}{4} = \frac{5}{2}$ ز $\frac{3}{2}$

$Df = \mathbb{R} - \{\frac{5}{2}, \frac{3}{2}, 1\}$

ب) $\frac{x+3}{3x^3-2x^2-8x-4} = \frac{x+3}{(x+1)(3x^2-5x-4)}$ ز -1

$\Delta = 25+48 = 73$

$\frac{5 \pm \sqrt{73}}{6} = 2$ ز $-\frac{4}{6}$

$Df = \mathbb{R} - \{-1, -\frac{4}{6}, 2\}$

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۲) الف) $x - \sqrt{2x-1} \neq 0 \rightarrow x^2 \neq 2x-1 \longrightarrow x^2+2x-1 \neq 0$

$Df = \mathbb{R} - \{1, -3\}$ جواب زائد

ب) $x - \sqrt{2x-1} \neq 0 \rightarrow x^2 \neq 2x-1 \longrightarrow Df = \mathbb{R} - \{1, 1\}$

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۳) الف) $y = \frac{\sin x}{2\cos x - 1} = 2\cos x - 1 \neq 0$ $\cos x \neq \frac{1}{2}$ $Df = \mathbb{R} - \{2k\pi - \frac{\pi}{3}, 2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$

ب) $y = \frac{\cos x + 1}{2\sin x + 1} = 2\sin x + 1 \neq 0$ $\sin x \neq -\frac{1}{2}$ $Df = \mathbb{R} - \{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$

ج) $y = \frac{\tan x + 2}{\cot x - 1} = \cot x - 1 \neq 0$ $\cot x \neq 1 \rightarrow x = k\pi + \frac{\pi}{4}$

$\sin x \neq 0 \rightarrow x = 2k\pi, 2k\pi + \pi$ $Df = \mathbb{R} - \{2k\pi, 2k\pi + \frac{\pi}{4}, 2k\pi + \frac{\pi}{2}\}$

د) $y = \frac{\sin x + 1}{4\sin^2 x - 3} = 4\sin^2 x \neq 3$ $\sin x \neq \frac{\sqrt{3}}{2}$ $Df = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \pi - \frac{\pi}{3}\}$

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۴) الف) $\frac{2}{+} \quad \frac{3}{-} \quad \frac{}{+}$ $Df = (-\infty, 2) \cup (3, +\infty)$

ب) $\frac{1}{+} \quad \frac{5}{-} \quad \frac{}{+}$ $Df = (1, 5)$

ج) $\frac{-1}{+} \quad \frac{-5}{-} \quad \frac{}{+}$ $Df = (-\infty, -5] \cup [-1, +\infty)$

د) $x^2 - 5x + 4 = 0$ $\frac{1}{+} \quad \frac{4}{-} \quad \frac{}{+}$

$(x-4)(x-1)$

ز $1, 4$ $[1, 4]$

۵) الف) $\frac{x^2-3x+2}{x-5} \longrightarrow \frac{(x-2)(x-1)}{(x-5)}$ ریشه‌ها: ۱، ۲، ۵ — $Df=(-\infty,1]\cup[2,5)$

ب) $x^2-4x+5=(x-5)(x-1) \rightarrow 1,5$; $(x^2-1) \longrightarrow 1,-1$ — $Df=(-\infty,-1]\cup[5,+\infty)$

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۶) الف) $\frac{x^2-4x+3}{x^2-1} \geq 0$; $x^2-4x+3=(x-1)(x-3) \rightarrow 1,3$; $x^2-1 \rightarrow 0,1$

$Df=(-\infty,0)\cup[3,+\infty)$

ب) $x^2-1 = \frac{-1 \quad 1}{+\ \ -\ \ +}$ $\quad Df=(-\infty,-1)\cup(1,+\infty)$

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۷) الف) $x^2-3x>0$; $x(x-3)>0$ $\quad Df=(-\infty,0)\cup(3,+\infty)$

ب) $\log 14-x^2 \longrightarrow 4-x>0 \quad 4>x \longrightarrow (-\infty,4)$ ①

$|x|-2 \longrightarrow |x|-2>0 \quad |x|>2 \begin{cases} x>2 \\ x<-2 \end{cases} \longrightarrow (-\infty,-2)\cup(2,+\infty)$ ②

$|x|-2\neq 1 \quad |x|\neq 3 \quad x\neq 3,-3$ ③

①، ②، ③ $\longrightarrow Df=(-\infty,-3)\cup(-3,4)$

ج) $x^2-7x+12=\frac{(x-3)(x-4)}{x-3} \longrightarrow \log \begin{matrix} x-4 \longrightarrow x>4 \\ 10-x \longrightarrow 10>x \end{matrix}$ $\quad Df=(4,10)$

د) $\log_x 4-x$; $4-x>0$; $4>x$; $x>0$; $x\neq 1$

$x^2-11x+28=(x-7)(x-4) \longrightarrow 7,4$

$Df=(0,4]-\{1\}$

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۸) $y=\frac{x^2-x}{x^2+x} \longrightarrow x^2+x=x(x+1)$ $\quad \frac{-1 \quad 0}{+\ \ -\ \ +}$ $\quad Df=(-\infty,-1)\cup(0,+\infty)$

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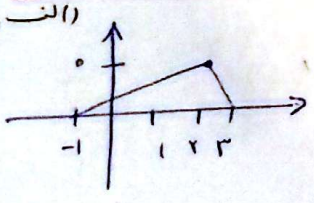
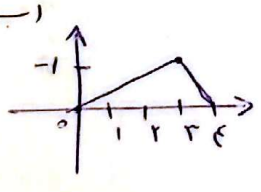
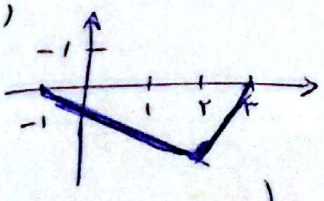
۱۰) الف) ۱)



۲)



ج) ۱)



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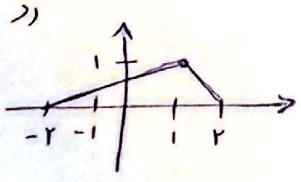

برعکس

		-1	0
x	$-$	$+$	$+$
$x-1$	$-$	$-$	$+$
$P(x)$	$+$	$-$	$+$

۹) $\frac{1}{2}e^{x}\cdot\frac{x}{2}=y \quad a=\frac{1}{2}$

$b=0$

$(0,4]-\{1\} \quad c=-\frac{3}{2}$