تکلیف سری دوم یازدهم دهتری پارسی عباسیان

۱۵,۵

۱. $2x^2+y^2-4x+6y+k=0$ ← یک تابع ناقص $k=?$

$2x^2+y^2-4x+6y+k=0$

$(y+3)^2=y^2+6y+9$

$2x^2-4x+(k-9)=0$ $\xrightarrow{\div 2}$ x^2-2x

$(x-1)^2=x^2-2x+1 \Rightarrow \times 2 = 2x^2-4x+2$

$k=9+2=11$

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2. $f(x)=\begin{cases} x^2+4x & x\geq a \\ 2x+a+2 & x<a \end{cases}$ ← $f(1)=?$ ، $a>0$

$\rightarrow a=1 \xrightarrow{x=1} 1+4=5$

$\rightarrow a=1 \xrightarrow{x=1} 2+1+2=5$

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3. $f(x)=\begin{cases} 2x^2-b & |x+1|\geq 2 \\ a+2x & -3<x\leq -1 \end{cases}$ ؛ $a+b=?$ است

$\begin{cases} 2x^2-b & |x+1|\geq 2 \\ a+2x & -3<x\leq -1 \end{cases} \Rightarrow$

۱۸-b=a-۴ → a+b=۲۲

۱

$x=-1 \rightarrow 2(-1)^2-b=a+2(-1)$

$2-b=a-2$

$\boxed{4=a+b}$

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4. $f(x)=\sqrt{6x-a}+\sqrt{b-3x}$ ← $D_f=\{2\}$ ← $\frac{b}{a}$ چقدر

$\begin{cases} 6x-a\geq 0 \rightarrow x\geq \frac{a}{6} \\ b-3x\geq 0 \rightarrow x\leq \frac{b}{3} \end{cases}$

$\sqrt{6(2)-a}+\sqrt{b-6}$

$\frac{a}{6}\leq x\leq \frac{b}{3}$

$\sqrt{12-a}+\sqrt{b-6}=0$

$\frac{a}{6}=\frac{b}{3}=2$

$12-a\geq 0 \quad 12\geq a$

$b-6\geq 0 \quad 6\leq b$

$\frac{b}{a}=\frac{1}{2}$

→ Idk but

$a=12 \quad b=12 \rightarrow \frac{12}{12}=1$; $\sqrt{12-12}+\sqrt{12-6}=\checkmark$

$a=6 \quad b=6 \rightarrow \sqrt{12-6}+\sqrt{6-6}=\sqrt{6}$

$a=12 \quad b=6 \rightarrow \sqrt{12-12}+\sqrt{6-6}=?$

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5. الف) $y=\sqrt{\frac{x+1}{|x-3|}}+\sqrt{\frac{6-x}{x^2+2x+4}}$; $x^2+2x+4 \rightarrow (x+1)^2+3$

$\Rightarrow$ $-$ (-1) $+$ (3) $+$; $+$ (6) $-$

$[-1,+\infty)-\{3\}$ I

$(-\infty,6]$ II

I ∩ II →

$[-1,6]-\{3\}$

۱,۷۵

ج) $y=\sqrt{[x]-۴}+\sqrt{۲-[x]}$

$[x]-۴\geq ۰$ $\quad$ $۲-[x]\geq ۰$

$[x]\geq ۴$ $\quad$ $[x]\leq ۲$

$[۴,+\infty)$ $\cap$ $(-\infty,۳)$ $\rightarrow$ $D_f=\emptyset$

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6. الف) $=\sqrt{\dfrac{x^2-x-6}{x^4-13x^2+36}}$ $\rightarrow$ $x^2-x-6 \rightarrow (x-3)(x+2)$ ③ ⊖2

$\hookrightarrow x^2=t \rightarrow t^2-13t+36 \rightarrow (t-9)(t-4)$ ⑨ ④

$\Rightarrow (x^2-9)(x^2-4)$

$(x-3)(x+3)(x+2)(x-2)$ ③ ⊖3 ⊖2 ②

-3	-2*	2	3*	
+	−	−	+	+

1

$(-\infty,-3)\cup(۲,۳)\cup(۳,+\infty)$

$D_f=(-\infty,-۳)\cup[-۲,-۱)\cup[۱,۲)\cup[۳,+\infty)$

ب) $\sqrt{\dfrac{x^3-2x^2-5x+6}{x^3+2x^2-5x-6}}$ 7) فرمیم ریشه ندارد

$\hookrightarrow \dfrac{(x-1)(x-۳)(x+۲)}{(x+1)(x+۲)(x-۲)}$

ریشه $\rightarrow 1^\checkmark, 2^\times, 3^\checkmark, -1^\times, -2^\checkmark, -3^\times$

$\Rightarrow$

-2	1	3	
−	+	−	+

$[-2,1]\cup[۳,+\infty)$

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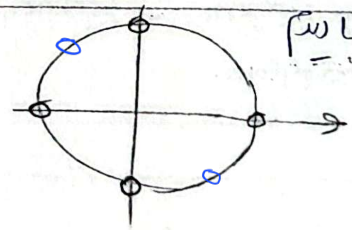
8. الف) $y=\dfrac{\cot x+1}{\tan x+1} = \dfrac{\frac{\cos}{\sin}+1}{\frac{\sin}{\cos}+1} \Rightarrow$



نصف را حساب شد

7 صفر نمیدد

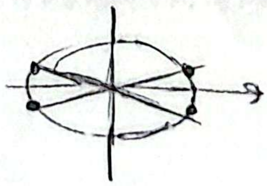
$\tan x\neq -1$

$\{k\pi+\frac{\pi}{2}+k\pi\}$

1,5

ب) $y=\sqrt{1-4\sin^2 x}$

$1-4\sin^2 x\geq 0 \rightarrow (1-2\sin x)(1+2\sin x)$ $\quad \frac{1}{2}$ $\quad -\frac{1}{2}$



$\left[k\pi\mp\frac{\pi}{4}\right]$

-I

الف) $= \sqrt{[-x]-2}$ $\quad [-x]-2 \geq 0$

$[-x] \geq 2 \rightarrow D_f = (-\infty, -1)$ $\quad (-\infty, -2]$

1,75

ب) $y = \dfrac{5x^2+6}{[x]^2-2[x]-3}$ $\quad \mathbb{R} \xrightarrow{I} x \xrightarrow{\pi} [x]^2-2[x]-3 \neq 0$

$[x]^2-2[x]-3=0$

$[x]^2-2[x] \neq 3$ ü $\quad \mathbb{R}-\{-1\}$

$[x] \neq 3, -1$

$x \notin [3,4), [-1,0)$

ف) $= \sqrt{1-\log_{\frac{1}{2}} x-1}$ $\quad 1-\log_{\frac{1}{2}} x-1 \geq 0$ $\quad \log_{\frac{1}{2}} x-1 \leq 1$ $\quad x-1>0 \Rightarrow x>1$

$x-1 \geq \frac{1}{2} \Rightarrow x \geq \frac{3}{2}$ $\quad \Rightarrow D_f = [\frac{3}{2}, +\infty)$

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ب) $\dfrac{\sqrt{x^2-x}}{1-\log_4^{x^2-3x}}$ $\quad x^2-x \geq 0$ $\quad x(x-1) \geq 0$ $\quad (-\infty,0] \cup [1,+\infty)$

$1-\log_4^{x^2-3x} \neq 0$ $\quad \log_4^{x^2-3x} \neq 1$ $\quad x(x-3)>0$ $\quad (-\infty,0) \cup (3,+\infty)$

$x^2-3x \neq 4$ $\quad x^2-3x-4 \neq 0$

$(x+1)(x-4) \neq 0$ $\quad x \neq -1, 4$

$\Rightarrow (-\infty,0) \cup (3,+\infty) - \{-1,4\}$

الف) $y = \sqrt{2^{4x-x^2}-8}$ $\quad 2^{4x-x^2}-8 \geq 0$

$2^{4x-x^2} \geq 8 \rightarrow 4x-x^2 \geq 3$

$x(4-x) \geq 3$ $\quad [0,4]$

-10

1,5

ب) $y = \left(\dfrac{3x+5}{2x+4}\right)^{\frac{1}{2}}$ $\quad \dfrac{3x+5}{2x+4} \in w$

$w \in \dfrac{4w-5}{2w-3}$ $\quad \rightarrow \{x \mid x = \dfrac{5-4k}{2k-3}, k \in w\}$

$x \in \dfrac{5-4w}{2w-3}$

$x^2-4x+3 \rightarrow$ (1, 3)

$D_f = [1,3]$