نام و نام خانوادگی ~~محمد~~ پارسا آجرلو ...... پاسخنامه تشریحی تکلیف شماره ...۴... کلاس ....

الف) $R=[0,+\infty)$

ب) $\log y = \overbrace{\sin x+4}^{[+5,+3]} \longrightarrow +5 \geqslant \log y \geqslant +3 \longrightarrow 100000 \geqslant y \geqslant 1000$ ۱

$y^2=\dfrac{x^2-4}{x^2-9} \longrightarrow (y^2-1)x^2-9y^2+4=0 \xrightarrow{\Delta} -4(-9y^2+4)(y^2-1)$

$\longrightarrow 36y^4-52y^2+16 \xrightarrow{y^2=t} 36t^2-52t+16 \xrightarrow{\Delta} \underbrace{(52)^2-(4)(16)(36)}_{20}$ ۲

$\dfrac{52\pm 20}{72} \begin{cases} 1 \longrightarrow y^2=1 \rightarrow y=\pm 1 \\ \frac{4}{9} \longrightarrow y^2=\frac{4}{9} \rightarrow y=\frac{2}{3} \end{cases} \xrightarrow[\text{علامت}]{\text{با تعیین}} R=[-1,\tfrac{2}{3}]\cup(1,+\infty) \xrightarrow{-1\times} [0,\tfrac{2}{3}]\cup(1,+\infty)$

$a+b+c=\frac{2}{3}+1=\frac{5}{3}$

الف) $\dfrac{x^2+1}{x}+2\sqrt{\dfrac{x^2+1}{x}} \longrightarrow \dfrac{x^2+1}{x}\geqslant 0 \longrightarrow x>0$

if $x=1 \longrightarrow \dfrac{x^2+1}{x}=2$ $\qquad R=[2+2\sqrt{2},+\infty)$ ۳

ب) $\underbrace{-\sin x^2}_{[-1,0]}+\underbrace{2\sin x}_{[-2,2]}+3=y \longrightarrow R=[0,4]$

$D_f=(1,2,3,\dots,9)$

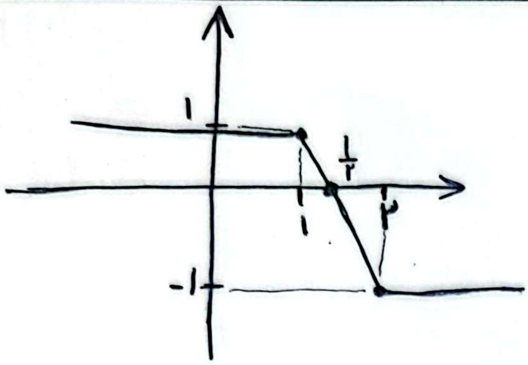
$R_f=\left\{\frac{29}{3},\frac{28}{3},\frac{27}{3},\frac{26}{3},\frac{25}{3},\frac{24}{3},\frac{23}{3},\frac{22}{3},\frac{21}{3}\right\}$ ۴

مجموع $=\dfrac{225}{3}=75$

$D_f=[2,+\infty) \xrightarrow[\text{۲ نیست}]{\text{تابع درجه}} a=0 \longrightarrow \begin{cases}\sqrt{2b+c}=0 \\ \sqrt{3b+c}=1\end{cases} \quad b=1,\ c=-2$

$\sqrt{bx^2+ax-2c}=\sqrt{x^2+4} \longrightarrow R=[2,+\infty)$ ۵

۶



$$|x-2|-|x-1|=kx$$

$$kx=1,-1 \longrightarrow k<0$$

$$k=(-1,0)$$

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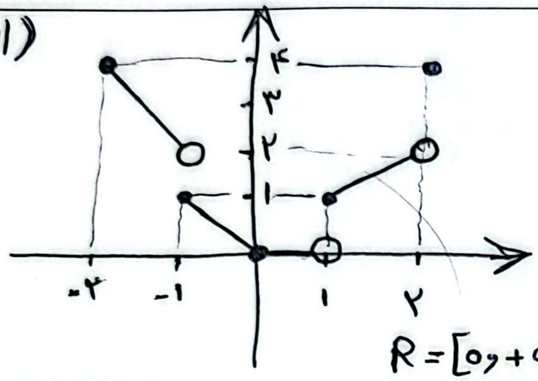
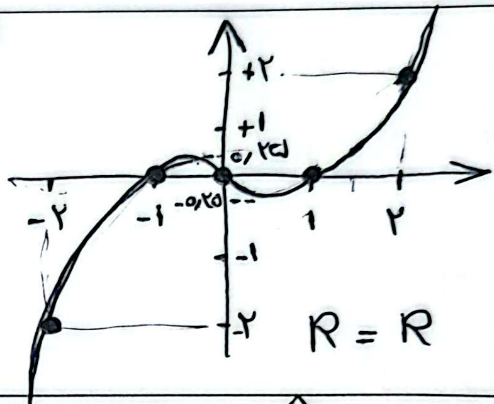
الف)



$R=[0,+\infty)$

ب)



$R=\mathbb{R}$

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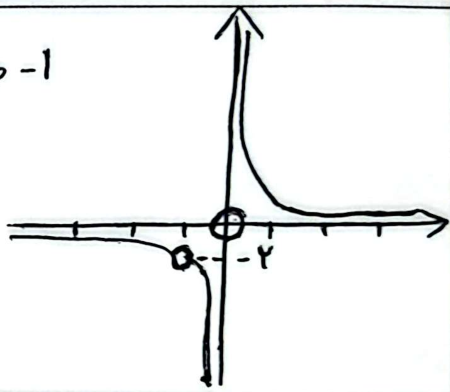
$$\frac{x+1+x+1}{x(x+1)}=\frac{2(x+1)}{x(x+1)}=\frac{2}{x}\longrightarrow x\neq 0,-1$$

$$\left.\begin{array}{l} a=-2 \\ b=0 \end{array}\right\} a+b=-2$$



۹

$$\sqrt{x}=t \longrightarrow \frac{t^2-4t+3}{t^2-2t+1}=\frac{(t-1)(t-3)}{(t-1)^2}=\frac{t-3}{t-1},\ t\neq 1 \longrightarrow \sqrt{x}\neq 1$$

$$\longrightarrow x\neq 1$$

	1		3	
+		−	0	+

$$\longrightarrow R=(-\infty,1)\cup[3,+\infty)$$

۱۰

$$\frac{x^3+2x^2-x-2}{x^2-1}\longrightarrow\frac{x^2(x+2)-(x+2)}{(x-1)(x+1)}=\frac{\cancel{(x^2-1)}(x+2)}{\cancel{x^2-1}}=x+2$$

$$x\neq\pm 1$$

$$\left.\begin{array}{l} x=1\longrightarrow 3 \\ x=-1\longrightarrow 1 \end{array}\right\} R=(-\infty,1)\cup(1,3)\cup(3,+\infty)$$