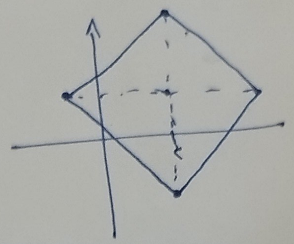
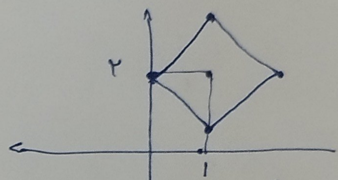
(۸) $|x-2|+|y-1|=3$

$y<1,\ x<2:\ y=-x$ | $y>1,\ x<2 \longrightarrow y=x+2$ | $y<1,\ x>2:\ y=x-4$ | $y>1,\ x>2:\ y=x+6$



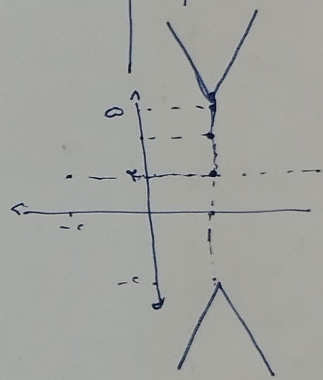
---

(۹) الف) $|x-1|+|y-2|=1$



مربع

ب) $|x-1|-|y-2|=3$



سطان

---

(۱۰) $y=3x+|ax+b| \quad \overset{R}{=}$

$$\begin{cases} x>\frac{-b}{a} & (3+a)x+b \\ x<\frac{-b}{a} & (3-a)x-b \end{cases}$$

$[+\infty, -\infty] - \{\ \}$ (حالتی خط افقی)

$(3+a)x+b=(3-a)x-b$

$2ax+2b=0$

---

(۷) $\left|\frac{x+1}{ax+3}\right|<1 \longrightarrow -1<\frac{x+1}{ax+3}<1$

$\frac{x+1}{ax+3}-1=\frac{x+1-ax-3}{ax+3}=\frac{(-a+1)x-2}{a}<0$

$\frac{x+1}{ax+3}+1>0 \longrightarrow \frac{(a+1)x+4}{ax+3}>0 \quad 2-b \rightarrow \begin{cases}(a+1)b=-4 \\ (-a+1)b=2\end{cases}$

$a+1=2a-2 \longrightarrow a=3$

① $f(2x+1)+f(x+2)=3x+f(3) \xrightarrow{\text{if } x=1} f(3)=3$

$ax+b \longrightarrow$

$\longrightarrow$ ~~$2ax+a+b+ax$~~ $\xrightarrow{\text{جایگذاری}} 3ax+3a+2b=3x+3$

$\longrightarrow a=1 \quad b=0$

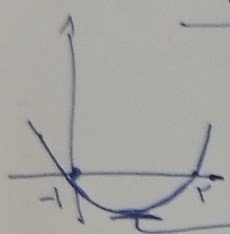
$\sqrt{x-x^2} \longrightarrow R_f=[0,\frac{1}{2}]$

② $f(x)=\dfrac{x^3-4x}{x+2}$ $\qquad R-\{a,b\}$ $\qquad x(x-2)=8$

$[3,+\infty)-\{8\}$ $\qquad x=4$ | توی دامنه نیست

$\dfrac{x(x^2-4)}{x+2} \longrightarrow \dfrac{x(x-2)(x+2)}{x+2}=x(x-2)$ $\qquad a,b=-2,4$

$C=-1$



$\longrightarrow$ $f(-1)=3$

$x^2-2x \longrightarrow -1$

③_ $\sqrt[3]{x^3+ax^2+bx-8}$ $\qquad \sqrt[3]{(x-2)^3} \longrightarrow x^3-6x^2+12x-8$

$a=-6$, $b=12$ $\longrightarrow R_f\ [-8,10]$

④_ $\dfrac{x+1}{1-x}>0 \longrightarrow$

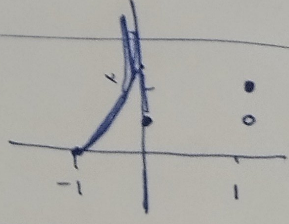
	-1		1	
	−	+	−	

$-1<x<1$

کسر مسئله سوال ۲؟

$y_2=\dfrac{ax^2-1}{x^2+b}$ $\begin{cases} 0 \to -\frac{1}{b} \to b=1 \\ +\infty \to a \to a=1 \end{cases}$

⑤_ $\dfrac{|x|}{x}+\dfrac{[x]}{x}$ $\begin{cases} -1\leq x<0 \longrightarrow y=-\frac{1}{x}-1 \\ 0\leq x<1 \longrightarrow y=1 \\ x=1 \longrightarrow y=2 \end{cases} \longrightarrow$



⑥_ $[x]+[x+\frac{1}{2}]$

$\frac{1}{2}\leq x<1$

$1\leq x<\frac{3}{2}$

$\frac{3}{2}\leq x<2$