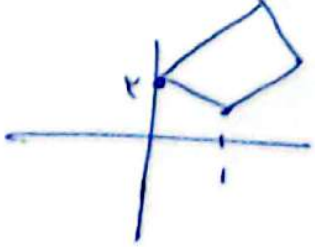
۹- چهارضلعی همبن دوازدهم

الف) $|x-1|+|y-2|=1$



ب) $|x-1|-|y-2|=2$

۱۰-

$x \geq -\frac{b}{a} \rightarrow y=(2+a)x+b$

$x \leq -\frac{b}{a} \rightarrow y=(2-a)x-b$

$-\frac{2b-ab}{a}+b=-\frac{2b+ab}{a}-b$

$\rightarrow -\frac{2ab}{a}=-2b$

$(2+a)(2-a)<0$

$\rightarrow a^2-9>0 \rightarrow |a|>3$

۱-

$x=1 \rightarrow 2f(2)=2+f(2) \rightarrow f(2)=2$ → $y=x$

$\rightarrow 3ax+3a+2b=2x+2 \rightarrow a=1 \rightarrow b=0$

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

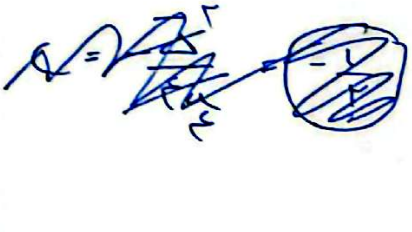
۲-

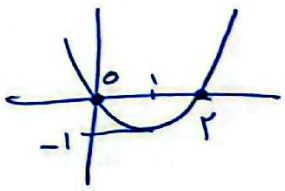
$y=\frac{x(x-2)(x+2)}{x+2} \rightarrow y=x^2-2x \rightarrow D_f=R-\{a,b\}$

$\rightarrow a=-2 \rightarrow b=4$

$x^2-2x=1 \rightarrow \frac{2\pm\sqrt{8}}{2}=-2,4$

$f(\frac{-2+4}{-2})=f(-1)$





$\rightarrow c=-1$

$f(-1)=3$

۳-

$y=\sqrt[3]{(x-2)^3} \rightarrow (x-2)^3=x^3-6x^2+12x-8$

$\rightarrow a=-6$

$\rightarrow b=12$

$\rightarrow R_f=[-8,10]$

۴-

$0<\frac{x+1}{-x+1} \rightarrow -1<x<1$

$\rightarrow y=\frac{ax^2-1}{x^2+b}$ → $0 \rightarrow -\frac{1}{b}=-1 \rightarrow a+b=0$

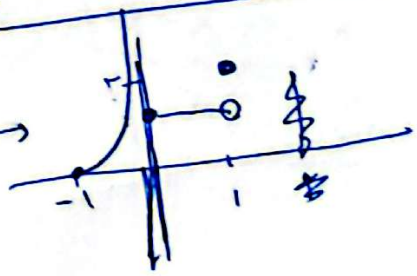
$+\infty \rightarrow a=1$

۵-

$-1\le x<0 \rightarrow y=-\frac{1}{x}-1$

$0\le x<1 \rightarrow y=1$

$x=1 \rightarrow y=2$

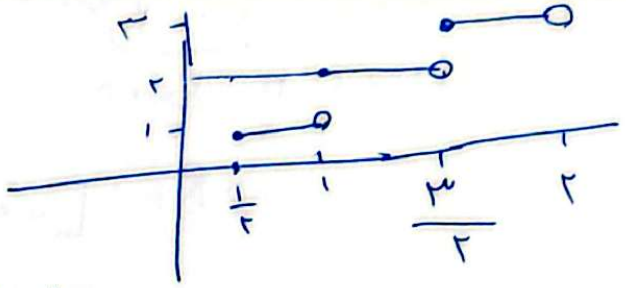


۶-

$\frac{1}{2} \le x < 1 \rightarrow y = 1$

$1 \le x < \frac{3}{2} \rightarrow y = 2$

$\frac{3}{2} \le x < 2 \rightarrow y = 3$



۳ پارامتر

۷-

$\left|\frac{x+1}{ax+3}\right| < 1 \rightarrow -1 < \frac{x+1}{ax+3} < 1$

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

$\frac{x+1}{ax+3} + 1 > 0 \rightarrow \frac{(a+1)x+4}{ax+3} > 0$

$x=b \rightarrow \begin{cases} (a+1)b = -4 \\ (-a+1)b = 2 \end{cases} \rightarrow \frac{a+1}{-a+1} = -2$

$\rightarrow a+1 = 2a-2$

$\rightarrow a = 3$

$\rightarrow b = -1$

$\rightarrow a-b = 4$

۸-

$|x-2|+|y-1| = 3 \rightarrow y > 1 \rightarrow y = -x+5$

$\$ \rightarrow \begin{matrix} y>1 \\ x<2 \end{matrix} \rightarrow y = x+2$

$\begin{matrix} y<1 \\ x>2 \end{matrix} \rightarrow y = x-4$

$\left.\begin{matrix} y<1 \\ x<2 \end{matrix}\right\} \rightarrow y = -x$