نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره ...۸... کلاس ...یازدهم تجربی...B...

۱

$f(x)=\sqrt{1-x^2}$, $g=\{(-1,1),(0,4),(2,0),(1,2)\}$, $2g-3f$ مجموع اعضای برد.

$Df \Rightarrow 1-x^2 \geq 0$

$x^2 \leq 1 \rightarrow -1 \leq x \leq 1$

دامنه مشترک $\rightarrow -1, 0, 1 \rightarrow f(x)=\{(-1,0),(0,1),(1,0)\}$

$2g-3f \rightarrow (-1,(2\times1)-(3\times0)), (0,(2\times4)-(3\times1)), (1,(2\times2)-(3\times0))$

$(-1,2),(0,5),(1,4)$ مجموع برد $2+5+4=11$

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$f(x)=2x-1 \Rightarrow Df=[3,+\infty)$, $g(x)=\frac{1}{3}x+3$, $Dg=(-\infty,3]$

$f(x)=2x-1 \xrightarrow{if\ x=3} (2\times3)-1=5$

$Rf=[5,+\infty)$

$g(x)=\frac{1}{3}x+3 \xrightarrow{if\ x=3} 1+3=4 \Rightarrow Rg=(-\infty,4]$

$Rf\cup Rg=(-\infty,4]\cup[5,+\infty) \Rightarrow \mathbb{R}-(4,5)$

۳

$y=\frac{-x^2}{2}+x+3$, (a,b) که [illegible] بزرگتر از $\frac{3}{2}$, $\max\sqrt{b-a}$

$\frac{-x^2}{2}+x+3-\frac{3}{2}>0$

$\frac{-x^2}{2}+x+\frac{3}{2}>0 \longrightarrow -x^2+2x+3>0$

$-3 \quad 1$: $+ \quad - \quad +$ $\Rightarrow (a,b) \rightarrow (-3,1)$

$\sqrt{1-(-3)}=2$

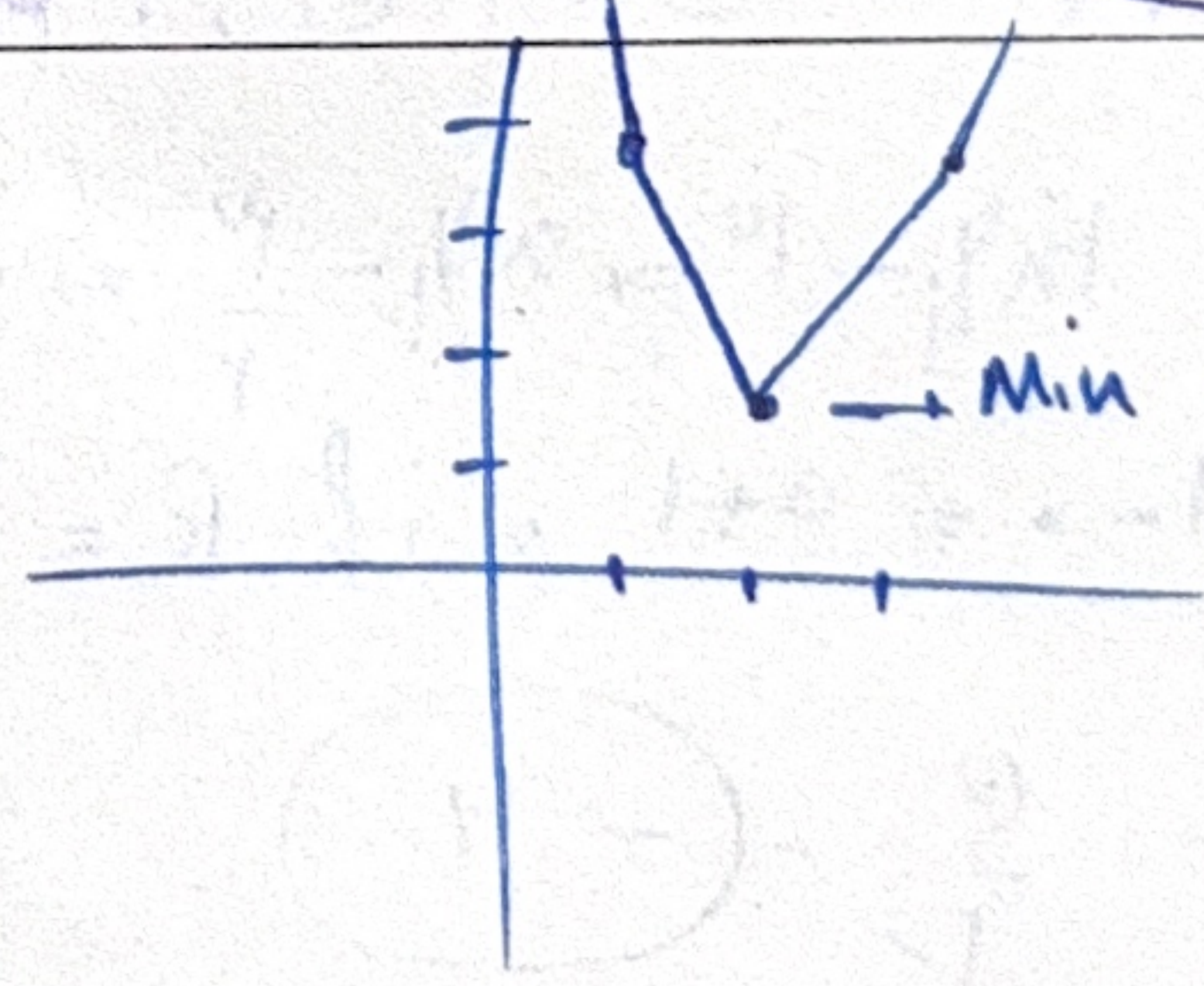
۴

Min $y=|x-1|+|x-3|+|2x-4|=$

$1 \quad 2 \quad 3$

$-4x+8$ (4) $-2x+6$ (2) $2x-2$ (4) $4x-8$

رسم شکل نمودار $\longrightarrow$



۵

$y=|x|-2|x+1|$ برد.

$-1 \quad 0$

$-x+2x+2$, $-x-2x-2$, $x-2x-2$

$x+2$, $-3x-2$, $-x-2$

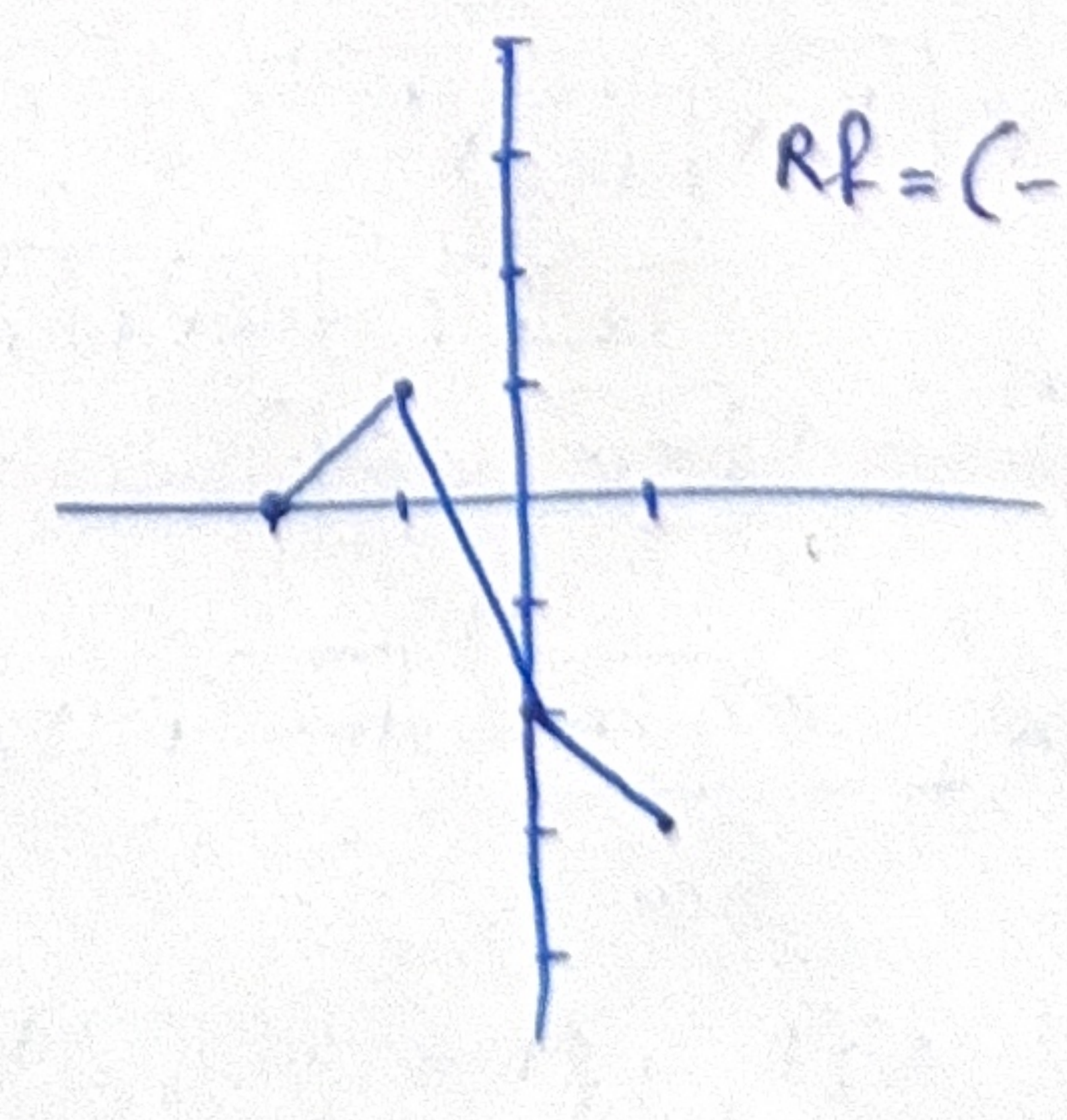
$f(x)=\begin{cases}-x-2 & x>0\\ -3x-2 & -1<x\leq0\\ x+2 & x\leq-1\end{cases}$

$if\ x=-1 \rightarrow -1+2=1$

$if\ x=0 \rightarrow -3\times0-2=-2$

$if\ x=-2 \rightarrow -2+2=0$

$if\ x=1 \quad -1-2=-3$



$Rf=(-\infty,1]$

$y = \frac{x^2+5x+m}{x+1}$ $\quad yx+y = x^2+5x+m \Rightarrow x^2+x(5-y)+m-y=0$

$x = -(5-y) \pm \sqrt{\underbrace{(5-y)^2-4(m-y)}_{\Delta}}$ $\quad \Delta \geq 0 \quad (5-y)^2 - 4m+4y \geq 0$

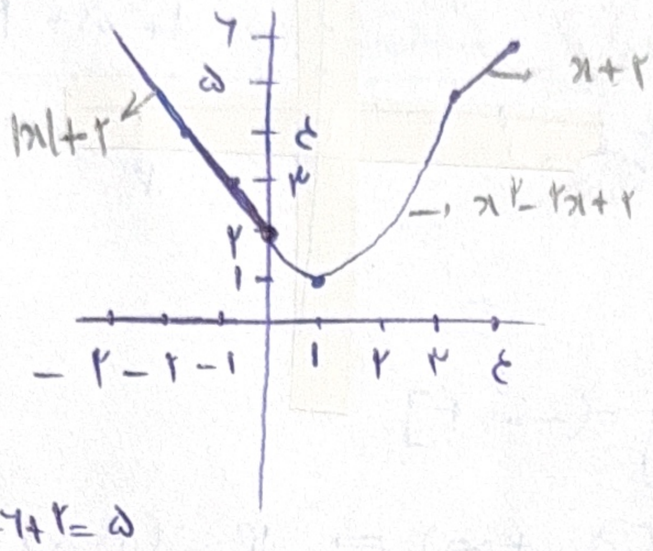
$y^2-10y+25-4m+4y \geq 0 \rightarrow y^2-6y+25-4m \geq 0$

$\sqrt{36-4(25-4m)} \in \mathbb{R}$

$\sqrt{36-100+16m} \in \mathbb{R} \quad -64+16m \geq 0 \longrightarrow 16m \geq 64$

$m \geq 4 \longrightarrow$ if $m=4 \Rightarrow \frac{(x+1)(x+4)}{(x+1)}$ $\quad m = \{4, 5, 6, \dots\}$

$$f(x) = \begin{cases} x+2 & ; x \geq 3 \\ x^2-2x+2 & ; 0 \leq x < 3 \\ |x|+2 & ; x < 0 \end{cases}$$

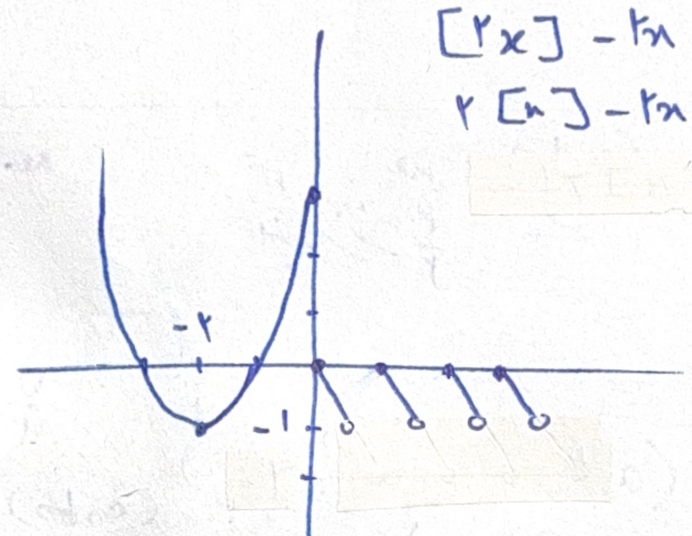


$Rf = [1, +\infty)$

x^2-2x+2

$S \begin{cases} x_S = \frac{2}{2} = 1 & \text{if } x = 3 \\ y_S = 1-2+2 = 1 & y(3)^2 - 2x3+2 = 9-6+2 = 5 \end{cases}$

$$f(x) = \begin{cases} x^2+4x+3 & ; x \leq 0 \\ [2x]-2x & ; x > 0 \end{cases}$$



$[2x]-2x$

$2[x]-2x \longrightarrow \mathbb{R} = (-1, 0]$

x^2+4x+3

$S \begin{cases} x_S = \frac{-4}{2} = -2 \\ y_S = 4-8+3 = -1 \end{cases}$

$Rf = [-1, +\infty)$

$y = a+1-\sqrt{2x+3} \quad D = [b, +\infty), R = (-\infty, 5]$

$D \rightarrow 2x+3 \geq 0 \longrightarrow 2x \geq -3 \Rightarrow x \geq -\frac{3}{2} \Rightarrow$ if $D = [b, +\infty) \Rightarrow b = -\frac{3}{2}$

if $x = -\frac{3}{2} \Rightarrow y = a+1-0 = a+1$, if $R = (-\infty, 5]$ $\quad a+1 = 5 \Rightarrow a = 4$

$ab = 24 \times -\frac{6}{4} = -9$

$f(x) = 2\sqrt{x+1} + 3\sqrt{1-x} \quad f(x)+g(x) = 3\sqrt{2+2\sqrt{1-x^2}} \quad Df = Dg$

$f(x)+g(x) = 3\sqrt{\underbrace{2+2\sqrt{1-x^2}}_{\rightarrow (\sqrt{1-x}+\sqrt{1+x})^2}} =$

$Rf \rightarrow y = \frac{f(x)}{2} - \frac{g(x)}{3}$

$y = \frac{f(x)}{2} - \frac{g(x)}{3} = \frac{2\sqrt{x+1} + 3\sqrt{1-x}}{2} - \frac{3\sqrt{1-x} + 3\sqrt{1+x} - 2\sqrt{x+1} - 3\sqrt{1-x}}{3} =$

$\frac{\sqrt{x+1} + 2\sqrt{1-x}}{3} + \frac{-3\sqrt{1-x} - 3\sqrt{1+x} + 2\sqrt{x+1} + 3\sqrt{1-x}}{3} = \frac{3\sqrt{1-x}}{3} = \sqrt{1-x}$

$Df \rightarrow x \geq -1, x \leq 1 \Rightarrow Df = -1 \leq x \leq 1$

$\sqrt{1-x}$ $\quad Max \longrightarrow$ if $x = -1 = \sqrt{2}$ $\quad Rf = [0, \sqrt{2}]$

$Min \longrightarrow$ if $x = 1 \Rightarrow 0$