نام و نام خانوادگی: آیین ایزدی ...... پاسخنامه تشریحی تکلیف شماره 8 کلاس A ......

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$f(x)=\sqrt{1-x^2} \qquad g=\{(-1,1),(0,4),(2,0),(1,2)\}$

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

$\Rightarrow 2g-3f=\{(-1,2),(1,4),(0,5)\} \Rightarrow 5+4+2=\boxed{11}$

۲

$f(x)=2x-1 \quad D_f=[3,+\infty) \xrightarrow[a>0]{f(3)=5} R_f=[5,+\infty)$

$g(x)=\frac{1}{3}x+3 \to D_g=(-\infty,3] \xrightarrow[a>0]{g(3)=4} R_g=(-\infty,4]$

$R_f \cup R_g=(-\infty,4]\cup[5,+\infty)$

۳

$y=\frac{-x^2}{2}+x+3 \qquad R_f=(a,b)>\frac{3}{2} \qquad \sqrt{b-a}=?_{max}$

$x_{max}=\frac{-b}{2a}=\frac{-1}{-1}=1 \,,\; y_{max}=-\frac{1}{2}(1)^2+1+3=-\frac{1}{2}+4=3/5=\frac{7}{2}$

$(a,b)\to\left(\frac{3}{2},\frac{7}{2}\right) \quad a=\frac{3}{2},\, b=\frac{7}{2} \qquad \sqrt{b-a}=\sqrt{\frac{7}{2}-\frac{3}{2}}=\sqrt{\frac{4}{2}}=\sqrt{2}$

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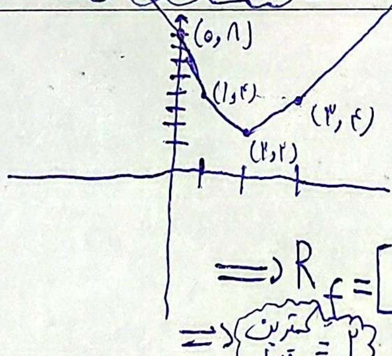
$y=|x-1|+|x-3|+|2x-4|$

$$y=\begin{cases}4x-8 & ; x\geq 3\\ 2x-2 & ; 2\leq x\leq 3\\ -2x+6 & ; 1\leq x\leq 2\\ -4x+8 & ; x\leq 1\end{cases} \Longrightarrow$$



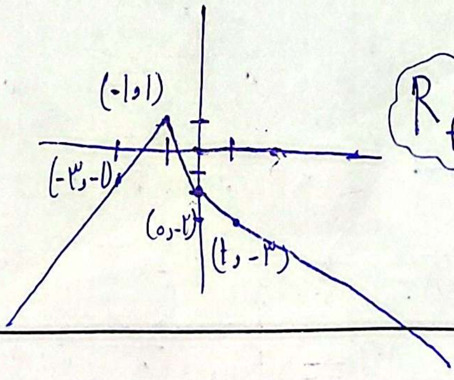
$\Rightarrow R_f=[2,+\infty)$

$\Rightarrow$ کمترین مقدار $=2$

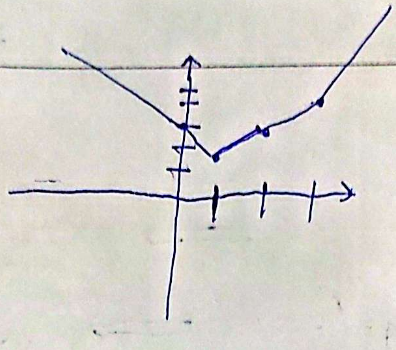
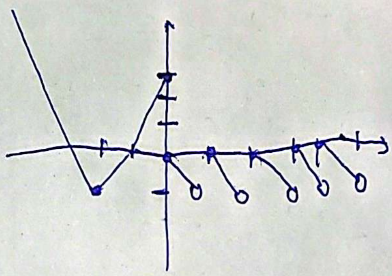
۵

$y=|x|-2|x+1|$

$$y=\begin{cases}-x-2 & ; x\geq 0\\ -3x-2 & ; -1\leq x\leq 0\\ x+2 & ; x\leq -1\end{cases} \Longrightarrow$$



$R_f=(-\infty,1]$

$y=\dfrac{x^2+5x+m}{x+1}\qquad R_f=\mathbb{R}$ $y(x+1)=x^2+5x+m\Rightarrow x^2+(5-y)x+(m-y)=0\xrightarrow{\Delta}(5-y)^2-4(m-y)=y^2-6y+(25-4m)$ $\Longrightarrow y^2-6y+(25-4m)\xrightarrow[\Delta=]{\Delta<0}(-6)^2-4(25-4m)=36-100+16m=16m-64<0$ $\Longrightarrow m<4\xRightarrow{m=4 \times} m<4$		
$f(x)=\begin{cases}x+2\ ; & x\geq 3\\ x^2-2x+3\ ; & 0\leq x<3\\ \lvert x\rvert+2\ ; & x<0\end{cases}$  $R_f=[1,+\infty)$	۷	
$f(x)=\begin{cases}x^2+4x+3\ ; & x\leq 0\to (x+2)^2-1\\ [2x]-2x\ ; & x>0\end{cases}$  $R_f=[-1,+\infty)$	۸	
$y=a+1-\sqrt{2x+3}\qquad D_f=[b,+\infty)\quad R_f=(-\infty,5]\quad ab=?$ $2x+3\geq 0\to x\geq -\frac{3}{2}\Rightarrow b=-\frac{3}{2}\xRightarrow{x=-\frac{3}{2}} y_{max}=a+1-0=a+1$ $R_f=(-\infty,a+1]\Rightarrow a+1=5\Rightarrow a=4$ $a\times b=4\times(-\frac{3}{2})=-6$	۹	
$f(x)=2\sqrt{x+1}+4\sqrt{1-x}\qquad f(x)+g(x)=3\sqrt{2+2\sqrt{1-x^2}}\qquad D_f=D_g$ $y=\dfrac{f(x)}{6}-\dfrac{g(x)}{3}\to R_y=?\qquad 3\sqrt{2+2\sqrt{1-x^2}}=3(\sqrt{1+x}+\sqrt{1-x})$ $g(x)=3(\sqrt{1+x}+\sqrt{1-x})-f(x)=(3-2)\sqrt{1+x}+(3-4)\sqrt{1-x}=\sqrt{1+x}-\sqrt{1-x}$ $\frac{f}{6}=\frac{1}{3}\sqrt{1+x}+\frac{2}{3}\sqrt{1-x}\Rightarrow\frac{f}{6}-\frac{g}{3}=(\frac{1}{3}\sqrt{1+x}+\frac{2}{3}\sqrt{1-x})-(\frac{1}{3}\sqrt{1+x}-\frac{1}{3}\sqrt{1-x})$	۱۰	

$=\sqrt{1-x}\Longrightarrow D_y=[-1,1]\Longrightarrow R_y=[0,\sqrt{2}]$