نام و نام خانوادگی ...امیرحسین مرعشی... پاسخنامه تشریحی تکلیف شماره ...۸.. کلاس ...یازدهم........

۱

$2g = \{(-1,2), (0,8), (2,0), (1,4)\}$

$3f(x) = \{(-1,0), (0,3), (1,0)\}$

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

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$f(x) = 2x-1 \longrightarrow D_f = [3,+\infty) \longrightarrow R_{f_{①}} = [5,+\infty)$

$g(x) = \frac{1}{3}x+3 \longrightarrow D_f = (-\infty,3] \longrightarrow R_{f_{②}} = (-\infty,4]$

$① \cup ② \longrightarrow R_{f_T} = (-\infty,4] \cup [5,+\infty)$

۳

$y = -\frac{x^2}{2} + x + 3 \xrightarrow{D_f=(a,b)} -\frac{x^2}{2} + x + 3 > \frac{3}{2} \to -x^2+2x+6 > 3$

$-x^2+2x+3 > 0$

$\xrightarrow{\text{روسی}} x^2+2x-3 > 0 \to (x+3)(x-1) > 0$

$\longrightarrow \boxed{x = +3, -1}$

$\longrightarrow (-1,3)$

$\sqrt{b-a} = \sqrt{4} = 2 \longleftarrow a=-1,\ b=3$ لـ

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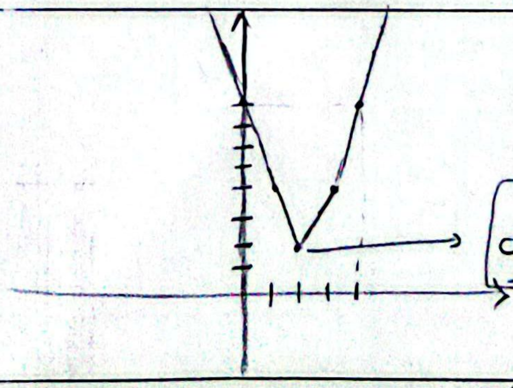

	۱		۲		۳	
$1-x-x+3-2x+4$		$x-1-x+3-2x+4$		$x-1+3-x+2x-4$		$x-1+x-3+2x-4$
$-4x+8$	4	$-2x+6$	2	$2x-2$	4	$4x-8$

$\boxed{\text{کمترین مقدار} = 2}$

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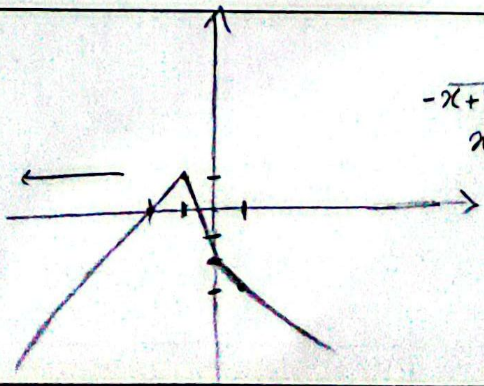
$y = |x| - 2|x+1|$

	-1		0	
$-x+2x+2$		$-x-2x-2$		$x-2x-2$
$x+2$	1	$-3x-2$	-2	$-x-2$

$R_f = (-\infty, 1]$



$$y=\frac{x^2+5x+m}{x+1} \longrightarrow y(x+1)=x^2+5x+m \rightarrow yx+y=x^2+5x+m$$

$$\longrightarrow x^2+(5-y)x+(m-y)=0 \longrightarrow \Delta=(5-y)^2-4(m-y)=25-10y+y^2-4m+4y$$

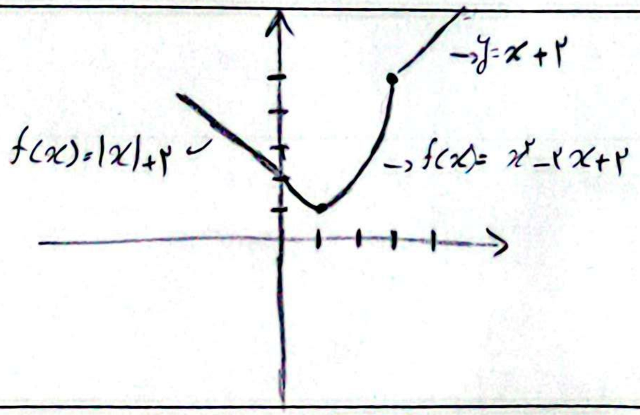
$$\longrightarrow \Delta=y^2-6y+(25-4m)\geqslant 0 \longrightarrow 36-4(25-4m)=16m-64 \Rightarrow y=\frac{6\pm\sqrt{16m-64}}{2}$$

$$y=3\pm\sqrt{m-4}$$

$$\xrightarrow{m>4} R=(-\infty, 3-2\sqrt{m-4}]\cup[3+2\sqrt{m-4}, +\infty)\neq R$$

$$\xrightarrow{m=4} y=x+4 \longrightarrow R_f=R-\{3\} \quad ; \quad m<4 \Rightarrow \Delta' <0 \rightarrow \Delta>0$$

$m=1$ یا 2 یا 3 پس ۳ جواب دارد.

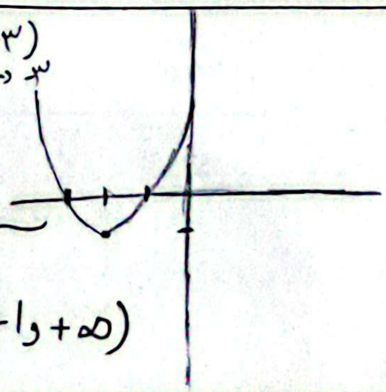


$$\longrightarrow R_f=[1, +\infty)$$ ۷

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

$(x+1)(x+3)$ $\;\hookrightarrow -1$ $\;\hookrightarrow -3$

$\hookrightarrow R_f=(-1, 0]$



$$R_f=[-1, +\infty)$$ ۸

$$y=a+1-\sqrt{2x+3} \longrightarrow D_f=[b, +\infty)$$

$\hookrightarrow 2x+3\geqslant 0 \longrightarrow x\geqslant -\frac{3}{2} \longrightarrow \boxed{b=-\frac{3}{2}}$ ۹

$R_f=(-\infty, 5]$

$$\xrightarrow{x=-\frac{3}{2}} a+1=5 \rightarrow a=4$$

$$\longrightarrow ab=\cancel{4}^{2}\left(-\frac{3}{\cancel{2}_1}\right)=\boxed{-6}$$

$$\left(\sqrt{x+1}+\sqrt{1-x}\right)^2=(x+1)+(1-x)+2\sqrt{1-x^2}=2+2\sqrt{1-x^2}$$

$$f(x)+g(x)=3\sqrt{\left(\sqrt{x+1}+\sqrt{1-x}\right)^2}=3\sqrt{x+1}+3\sqrt{1-x}$$

$$f(x)=2\sqrt{x+1}+4\sqrt{1-x} \Longrightarrow g(x)=\sqrt{x+1}-\sqrt{1-x} \qquad D_f=D_g=[-1,1]$$ ۱۰

$$y=\frac{f(x)}{6}-\frac{g(x)}{3}=\frac{f(x)-2g(x)}{6}=\frac{2\sqrt{x+1}+4\sqrt{1-x}-2(\sqrt{x+1}-\sqrt{1-x})}{6}$$

$$y=\frac{6\sqrt{1-x}}{6}=\sqrt{1-x} \Longrightarrow R_f=[0, \sqrt{2}]$$

$\hookrightarrow D=[-1,1]$