۱۹

کیان جعفری

① $2g=\{(-1,2),(0,8),(2,0),(1,4)\}$ (۲)

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

$\Rightarrow 2+5+4=11$ ✓ (۲)

② $R_f=[5,+\infty)$ $R_g=(-\infty,4] \Rightarrow R_f \cup R_g = (-\infty,4] \cup [5,+\infty)$ ✓

③ $\frac{-x^2}{2}+x+3>\frac{3}{2} \Rightarrow -x^2+2x+6>3$

$\Rightarrow x^2-2x-3<0 \Rightarrow$

	-1		3	
+	0	−	0	+

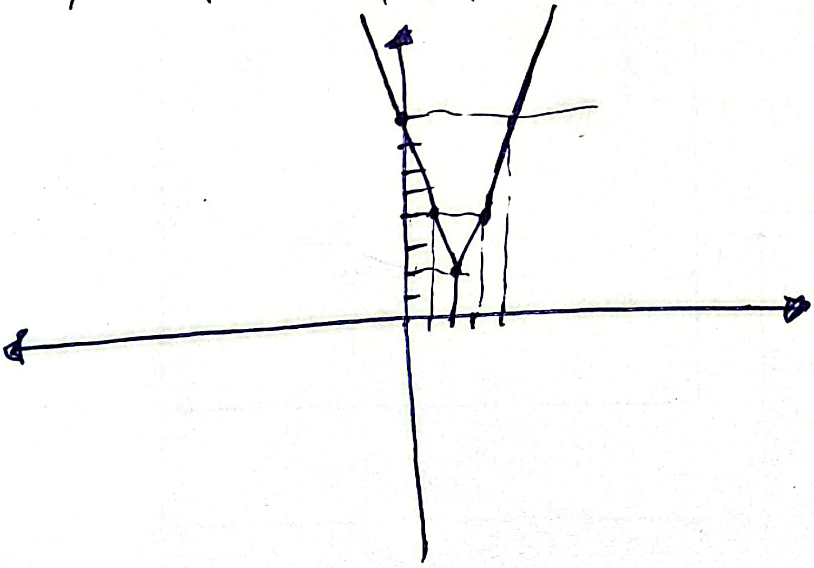
$\Rightarrow a=-1,\ b=3$ (۲)

$\Rightarrow \sqrt{3+1}=2$ ✓

④ $Y=|x-1|+|x-3|+|2x-4|$ (۲)

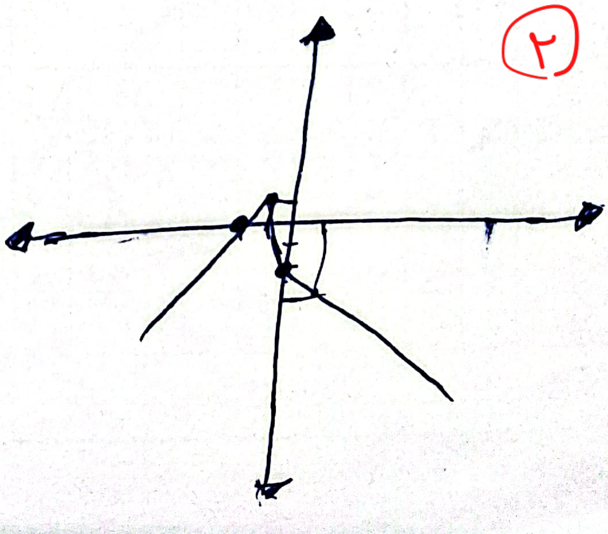
x	0	1	2	3	4
Y	8	4	2	4	8

کمترین مقدار = [2] ✓



⑤ $Y=|x|-2|x+1|$ (۲)

x	-2	-1	0	1
Y	0	1	-2	-3



$R_y=[1,-\infty)$

$(-\infty,1]$

دقت!

(6) $yx+y=x^2+5x+m \Rightarrow x^2+(5-y)x+m-y=0$ **1.5**

$\Delta \geq 0 \Rightarrow (5-y)^2-4(m-y)\geq 0 \Rightarrow y^2-6y+25-4m \geq 0$

$\Rightarrow a>0 ,\ \Delta \leq 0 \Rightarrow 36-4(25-4m)\leq 0 \Rightarrow 9-(25-4m)\leq 0$

~~$9-25+4m \leq 0$~~ -16 $\Rightarrow$ [illegible]

$4m \leq 16 \Rightarrow m \leq 4 \Rightarrow m \in \{1,2,3,4\}$

اگه $m=4$ باشه ۱۳ از برد حذف میشه و
دیگه IR نیست پس $m=\{1,2,3\}$

(7) $x+2 \xrightarrow{3} [5,+\infty)$ **2**

$x^2-2x+3 \quad \frac{-b}{2a} \quad \frac{2}{2}=1 \xrightarrow{1} 1-2+3=2 \Rightarrow [2,6]$

$\xrightarrow{3} 9-6+3=6$

$|x|+2 \rightarrow [2,+\infty)$

$\Rightarrow R_f=[2,+\infty)$ ✓

(8) $x^2+4x+3 \Rightarrow \frac{-4}{2}=-2 \xrightarrow{-2} 4-8+3=-1$ **2**

$\Rightarrow [-1,+\infty)$ ✓

$[2x]-[2x] \Rightarrow [0,1) \Rightarrow R_f=[-1,+\infty)$

(9) $2x+3 \geq 0 \Rightarrow 2x \geq -3 \Rightarrow x \geq \frac{-3}{2} \Rightarrow \boxed{b=\frac{-3}{2}}$ ✓ **2**

$0+1+a=5 \Rightarrow \boxed{a=4}$ ✓ $ab=\frac{-3}{2}\cdot 4=-6$ ✓

(10) $f(x)+g(x)=\sqrt{18+18\sqrt{1-x^2}}=3\sqrt{1+x}+3\sqrt{1-x}$

$\Rightarrow g(x)=\sqrt{x+1}-\sqrt{1-x}$ **1.5**

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

$[-1,1]$ $\quad [0,\sqrt{2}]$

$D_f=$ ~~$(-\infty,1]$~~ $, \quad R_f=$ ~~$[0,+\infty)$~~