Subject: تکلیف شفا، ۸۰ Date:

به نام خدا

۱۹/۲۵

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یازدهم تجربی

①

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

$\rightarrow 2g - 3f = ? \quad D_f \cap D_g \,,\ ①\ D_f: \geq 0 \Rightarrow 1 - x^2 \geq 0 = (1-x)(1+x) \geq 0$

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$-1 \quad 1$
$- \;|\; + \;|\; - \Rightarrow D_f = [-1,1] \Rightarrow -1, 0, 1$ قابل قبول

$\rightarrow g(-1) = 1,\ f(-1) = 0 \rightarrow 2g - 3f = 2 - 0 = 2$

$\rightarrow g(0) = 4,\ f(0) = 1 \Rightarrow 8 - 3 = 5$

$\rightarrow g(1) = 4,\ f(1) = 0 \Rightarrow 4 - 0 = 4$

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

②

۲

$f(x) = 2x - 1 \longrightarrow D_f = [3, +\infty)$

$\longrightarrow R_f = [6-1, +\infty) \Rightarrow [5, +\infty)$

$g(x) = \frac{1}{3}x + 3 \,,\ D_g = (-\infty, 3]$

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

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③ ②

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

$$\Rightarrow x^2 - 2x - 6 < -3 \Rightarrow x^2 - 2x - 3 < 0 \Rightarrow (x-3)(x+1) < 0$$

	-1		3	
+		−		+

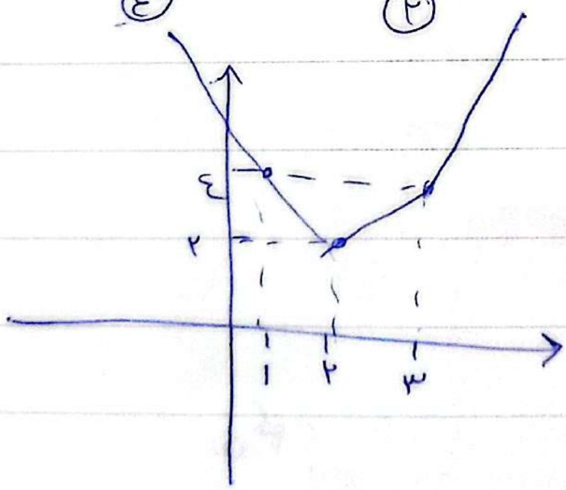
$$\Rightarrow (\underbrace{-1}_{a}, \overbrace{3}^{b}) \Rightarrow \sqrt{3+1} = \sqrt{4} = 2$$

④ ②

$$y = |\overbrace{x-1}^{x=1}| + |\overbrace{x-3}^{x=3}| + |\overbrace{2x-4}^{x=2}|$$

① ② ③

⊖ همه	1	① → ⊕ ; ② , ③ → ⊖	2	② → ⊖ ; ③ , ① → ⊕	3	⊕ همه
$1 - x + 3 - x + 4 - 2x = 8 - 4x$	4	$x - 1 + 3 - x + 4 - 2x = 6 - 2x$	2	$3 - x + 2x - 4 + x - 1 = 2x - 2$	4	$4x - 8$



$$\Rightarrow \min R = 2$$

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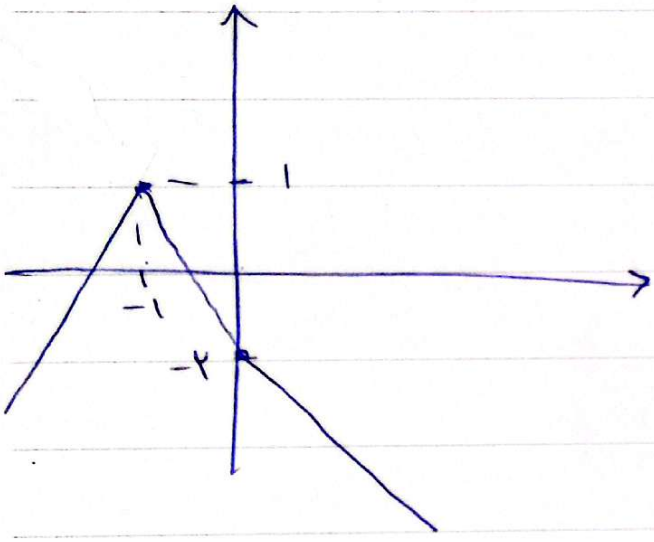
$$y = |x| - 2|x+1|$$

(۲)

$x \le -1$	$-1 < x \le 0$	$x > 0$
$-x+2x+2$	$-x-2x$	$x-2x-2$
$=2+x$	-2	$=-x-2$
	$=-3x-2$	

(۱) (۲) (۳)



شکل

$\Rightarrow Rf = (-\infty, 1]$

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(۲)

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

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

$$\longrightarrow y^2 - 4y + 25 - 4m > 0 \xrightarrow[\text{باشد}]{\text{باید}} \Delta_y = 100 + 4m < 0$$

$$\longrightarrow 4m < 16 \longrightarrow m < 4 \Rightarrow 1, 2, 3 \longrightarrow \text{۳ عدد}$$

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

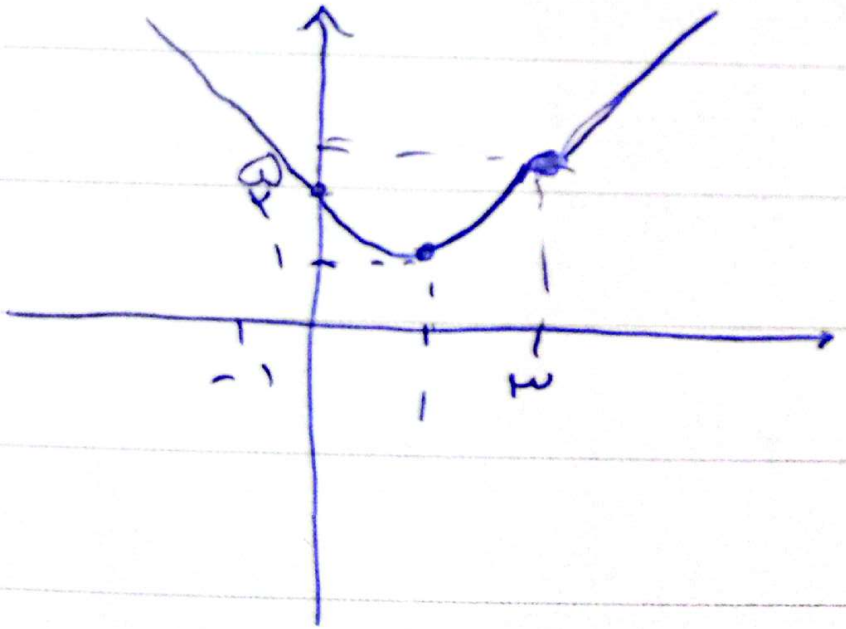
(۷)

(۳)

$\rightarrow \frac{-b}{2a} = \frac{2}{2} = 1$

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

$\rightarrow 0 - 0 + 2 = 2$



$\Rightarrow R_f = [1, +\infty)$

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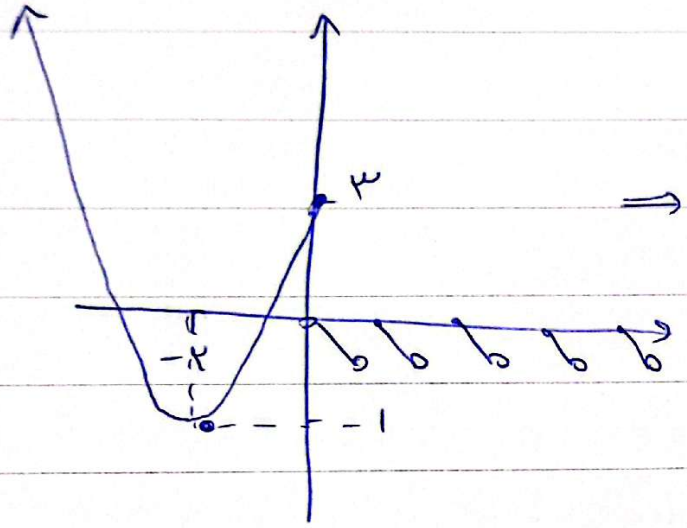
$$f(x)=\begin{cases} x^2+4x+3 & ; x<0 \\ [2x]-2x & ; x\geq 0 \end{cases}$$

$x<0 \rightarrow \frac{-b}{2a}, \frac{-\Delta}{4a} = -2$ (1)

$4-8+3=-1$ (1)

(2)

$0+0+3$



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

(4)

$g = a+b\sqrt{2x+3}$ (2)

$\rightarrow Df = [b, +\infty)$

$\rightarrow Rf = (-\infty, a]$

$2x+3 \geq 0 \Rightarrow 2x \geq -3 \Rightarrow x \geq \frac{-3}{2} \rightarrow b$

$\rightarrow Rf: a+1-0 = a \Rightarrow a=3$ (1)

$\rightarrow ab = 3x\frac{-3}{2} = -9$ (1)

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$f(x) = 2\sqrt{x+1} + 3\sqrt{1-x}$ (1.)

$f(x) + g(x) = 4\sqrt{2+2\sqrt{1-x^2}}$ (1,5)

$D_f = D_g$

$y = \frac{f(x)}{4} - \frac{g(x)}{4}$

$\sqrt{2+2\sqrt{1-x^2}}$

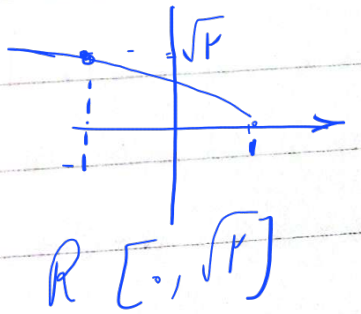
$\left(\sqrt{(1-x)^2} + \sqrt{(1+x)^2}\right)^2 = 1-x+1+x+2\sqrt{1-x^2}$

$\Rightarrow 2+2\sqrt{1-x^2} \Rightarrow 4(\sqrt{1-x}+\sqrt{1+x}) = 4\sqrt{1-x} + 4\sqrt{1+x}$

$\Rightarrow g(x) = \sqrt{1+x} - \sqrt{1-x} \Rightarrow \frac{f(x)}{4} - \frac{g(x)}{4}$

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

$= \frac{4\sqrt{1-x}}{4} = \sqrt{1-x}$



$R\ [0, \sqrt{2}]$

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