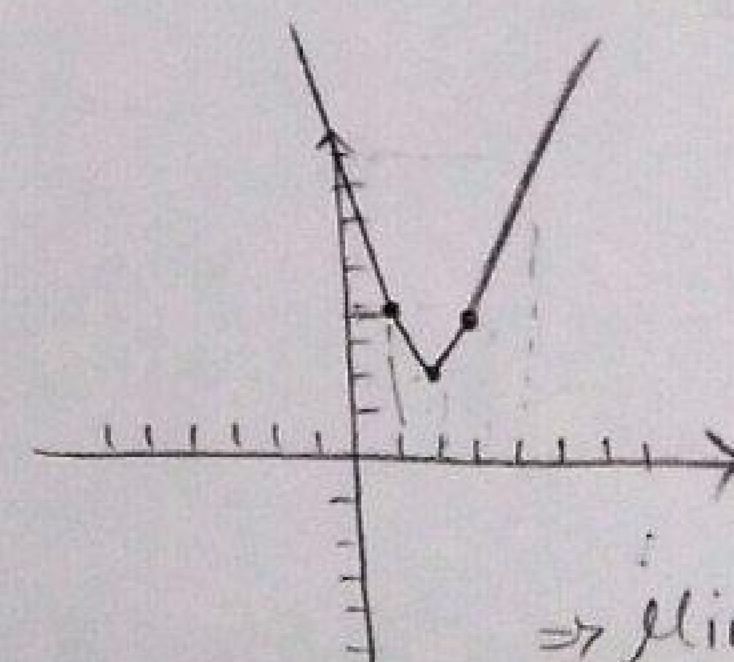
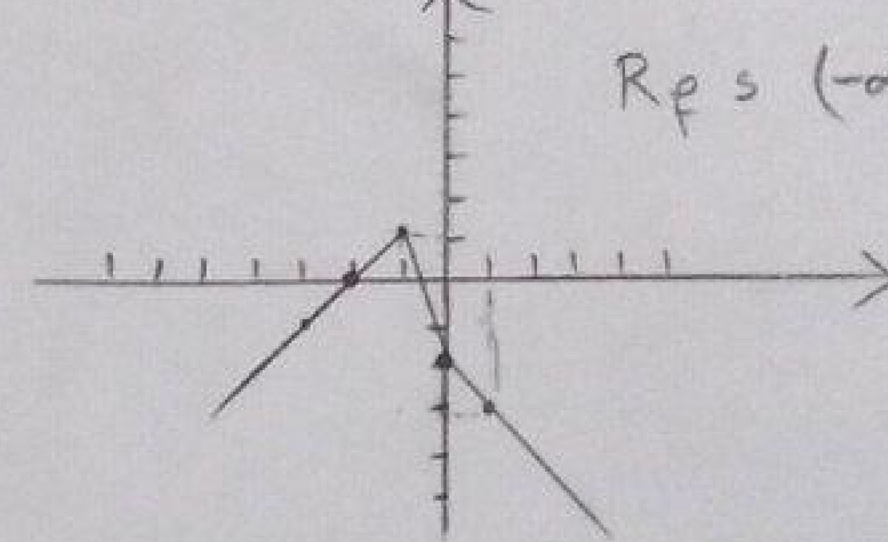
نام و نام خانوادگی: آ. لاوردی　　　تکلیف شماره ۸　　　کلاس یازدهم تجربی

۱	$D_f = [-1,1]$ g دامنه مشترک با $\to -1, 1, 0$ $\left.\right\} \Rightarrow$ $f(x) = \sqrt{1-x^2}$ $g(x) = \{(-1,1),(0,4),(1,2)\}$ $2g-3f : \{(-1, \overset{2}{\cancel{2-0}}), (0, \overset{5}{\cancel{8-3}}), (1, \overset{4}{\cancel{4-0}})\} \Rightarrow R_{2g-3f(x)} = \{2,5,4\}$
۲	$f(3) = 9-1 = 5 \Rightarrow R_f = [5,+\infty)$ $g(2) = 1+3 = 4 \Rightarrow R_g = (-\infty,4]$ $\left.\right\} R_f \cup R_g = \mathbb{R} - (4,5)$
۳	$\frac{-x^2}{2} + x + 3 > \frac{3}{2} \xrightarrow{\times 2} -x^2 + 2x + 6 > 3 \Rightarrow x^2 - 2x - 3 < 0 \Rightarrow \underbrace{-3}_{a} < x < \underbrace{1}_{b}$ $\begin{array}{c} -3 \quad 1 \\ \hline + \mid - \mid + \end{array}$ $\sqrt{\underset{1+3}{b-a}} = \sqrt{4} = 2$
۴	$\begin{cases} x-1+x-3+2x-4 & x>3 \\ x-1-x+3+2x-4 & 2\le x\le 3 \\ x-1-x+3-2x+4 & 1\le x\le 2 \\ 1-x-x+3-2x+4 & x<1 \end{cases} \to \begin{cases} 4x-8 & x>3 \\ 2x-2 & 2\le x\le 3 \\ -2x+6 & 1\le x\le 2 \\ -4x+8 & x<1 \end{cases}$  $\Rightarrow \min = 2$

۵
$$\begin{cases} x - 2x - 2 & x > 0 \\ -x - 2x - 2 & -1 \leq x \leq 0 \\ -x + 2x + 2 & x < -1 \end{cases} \Rightarrow \begin{cases} -x - 2 & x > 0 \\ -3x - 2 & -1 \leq x \leq 0 \\ x + 2 & x < -1 \end{cases}$$



$R_f = (-\infty, +1]$

۶
$yx + y = x^2 + 5x + m$

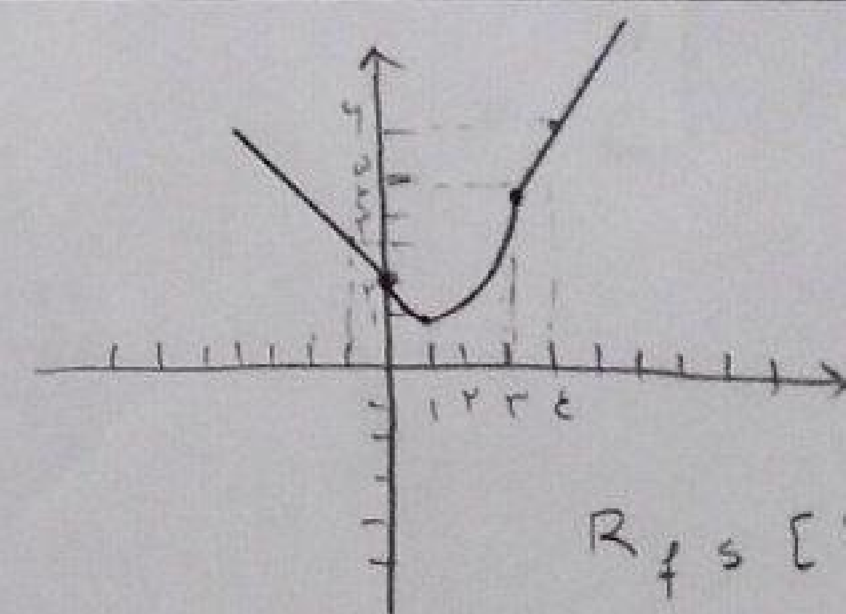
$x^2 + (5-y)x + m - y = 0 \rightarrow b^2 \geq 4ac \rightarrow (5-y)^2 \geq 4(m-y)$

$$\rightarrow y^2 - 6y + 25 - 4m \geq 0 \quad \begin{cases} a > 0 \ \checkmark \\ \Delta \leq 0 \rightarrow b^2 < 4ac \rightarrow 36 < 4(25 - 4m) \rightarrow m \leq 4 \rightarrow m = \{1, 2, 3, 4\} \end{cases}$$

✓
$x \geq 3 : \quad \begin{vmatrix} 3 \\ 5 \end{vmatrix} \quad \begin{vmatrix} 4 \\ 6 \end{vmatrix}$

$$|x| + 2 \begin{cases} \xrightarrow{} x > 0 = x + 2 \\ \hookrightarrow x < 0 = 2 - x \end{cases} \xrightarrow{x<0} 2 - x$$

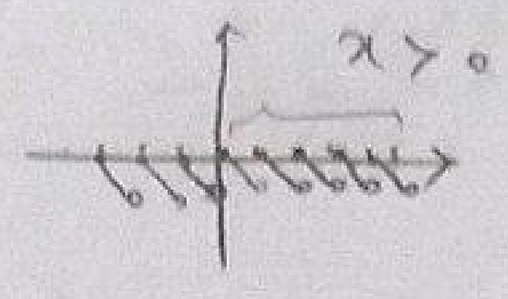
$0 \leq x < 3 : \quad \begin{vmatrix} -b/2a = 1 \\ 1 - 2 + 2 = 1 \end{vmatrix}$



$R_f = [1, +\infty)$

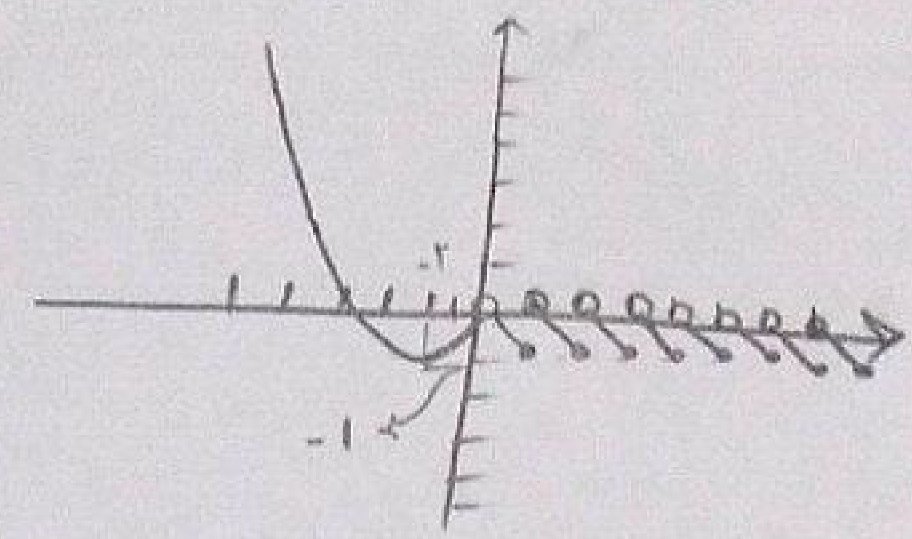
۸

$[۲x] - ۲x$:



$-\frac{b}{۲a} = \frac{-۴}{۲} = -۲$

$۴ - ۸ + ۳ = -۱$



$R_f = [-۱, +\infty)$

۹

دامنه: $۲x + ۳ \geq ۰ \Rightarrow x \geq -\frac{۳}{۲} \Rightarrow b = -\frac{۳}{۲}$

برد: $x = -\frac{۳}{۲} \Rightarrow y = a + ۱ = ۵ \Rightarrow a = ۴$

$\Rightarrow a \times b = -\frac{۳}{\cancel{۲}} \times \cancel{۴}^{۲} = -۶$

۱۰

$$g(x) = \underbrace{۳\sqrt{۲ + ۲\sqrt{۱-x^۲}}}_{۳\sqrt{۱-x} + ۳\sqrt{۱+x}} - (۲\sqrt{x+۱} + ۴\sqrt{۱-x}) \Rightarrow g(x) = \sqrt{x+۱} - \sqrt{۱-x}$$

$$\Rightarrow \frac{-g(x)}{۳} + \frac{f(x)}{۶} = \frac{\cancel{-۲\sqrt{x+۱}} + ۲\sqrt{۱-x} + \cancel{۲\sqrt{x+۱}} + ۴\sqrt{۱-x}}{۶} = \sqrt{۱-x} = h(x)$$

$R_h = [۰, \sqrt{۲}]$

برای $x = ۱ \rightarrow ۰$

$x = -۱ \rightarrow \sqrt{۲}$