نام و نام خانوادگی ......هستی حبیبی...... پاسخنامه تشریحی تکلیف شماره ..۸.. کلاس ...دهم ....

۱۹,۲۵

۱

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

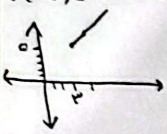
$f(x)=\sqrt{1-x^2} \Rightarrow f(x)=\{(-1,0),(0,1),(1,0)\}$

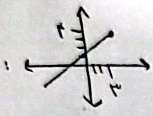
$\Rightarrow 2g-3f=\ ? \quad : \begin{cases} 2g=\{(-1,2),(0,8),(2,10),(1,4)\} \\ 3f=\{(-1,0),(0,3),(1,0)\} \end{cases} \Rightarrow 2g-3f=\{(-1,2),(0,5),(1,4)\}$

$\Rightarrow R_f=\{2,4,5\} \rightarrow 2+4+5=11$

۲

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





$D_f=[3,+\infty) \quad , \quad D_g=(-\infty,3]$

$\Rightarrow R_f=[5,+\infty) \quad , \quad R_g=(-\infty,4] \qquad \Rightarrow R_f \cup R_g=(-\infty,4]\cup[5,+\infty) = \mathbb{R}-(4,5)$

۳

$y=\frac{-x^2}{2}+x+4 \quad : \quad \frac{-x^2}{2}+x+4>\frac{3}{2} \xrightarrow{\times 2} -x^2+2x+8>3 \quad : \quad x^2-2x-3<0$

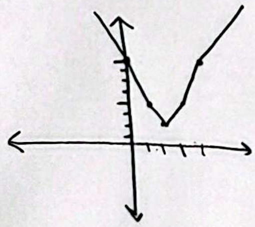
$x=-1,3 \quad ; \quad \begin{array}{c|c|c} & -1 \quad 3 & \\ + & - & + \end{array} \rightarrow (-1,3)$

$\Rightarrow \sqrt{b-a}$ بیشترین مقدار $: \sqrt{3-(-1)}=\sqrt{4}=2$

۴

$y=|x-1|+|x-3|+|2x-4| \Rightarrow$ کمترین مقدار $=?$

	1	2	3
$-x+1-x+3$ $-2x+4$	$x-1+3-x$ $-2x+4$	$x-1+3-x$ $+2x-4$	$x-1+x-3$ $+2x-4$
$-4x+8$	$-2x+6$	$2x-2$	$4x-8$
$+4$	2		4



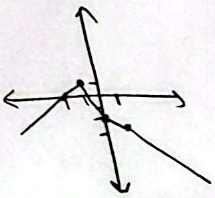
$\Rightarrow R_f=[2,+\infty)$

$\Rightarrow \frac{2}{2}$: جواب

۵

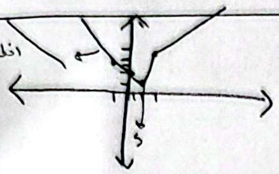
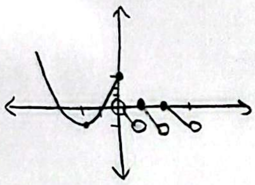
$y=|x|-2|x+1| \longrightarrow R_f=?$

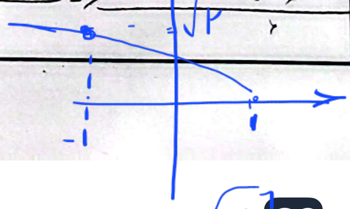
	-1	0
$-x+2x+2$	$-x-2x-2$	$x-2x-2$
$x+2$	$-3x-2$	$-x-2$
	1	-2



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

$M=4 \to \frac{x^2+5x+4}{x+1} = x+4 ,\ x \neq -1$ بُرد تابع $\mathbb{R}$ نمی‌شود

$y = \frac{x^2+5x+m}{x+1} \to R_f = \mathbb{R} \Rightarrow yx + y = x^2 + 5x + m \to x^2 + (5-y)x + (m-y) = 0$ $x \Rightarrow \frac{-5+y \pm \sqrt{(5-y)^2 - 4(m-y)}}{2} = \frac{-5+y \pm \sqrt{y^2-6y-4m+25}}{2} \Rightarrow \geq 0 : y^2 - 6y + (-4m+25) \geq 0$ $25 - 10y + y^2 - 4m + 4y$ $\Rightarrow \begin{cases} a > 0 \\ \Delta \leq 0 \end{cases}$ $\Rightarrow 36 - 4(25-4m) \leq 0 \to 36 - 100 + 16m \leq 0$ $\Rightarrow 16m - 64 \leq 0 \to m - 4 \leq 0 \to m \leq 4 \Rightarrow (-\infty, 4] \to$ طبیعی $: \{1,2,3,4\} \Rightarrow$ ۴ مقدار 1,75	۶
$f(x) = \begin{cases} x+2 & : x \geq 3 \\ x^2-2x+2 & : 0 \leq x < 3 \\ \lvert x \rvert + 2 & : x < 0 \end{cases} \Rightarrow$  $\Rightarrow R_f = [1, +\infty)$ $\Rightarrow x^2 - 2x + 2 : \xrightarrow{x=3} 9 - 6 + 2 = 5$ $\xrightarrow{x=0} 2 \quad , \frac{-b}{2a} = \frac{2}{2} = 1$ $\Rightarrow \lvert x \rvert + 2 \xrightarrow{x=0} \Rightarrow 2$ $\xrightarrow{x=-1} 3$ 2	۷
$f(x) = \begin{cases} x^2+4x+3 & : x \leq 0 \\ [2x] - 2x & : x > 0 \end{cases} \to R_f = ?$ $R = (-1, 0]$ $\frac{-b}{2a} = -2$, -1 $\to x = 0 : 3$  $\Rightarrow R_f = [-1, +\infty)$ 2	۸
$y = a + 1 - \sqrt{2x+3} \Rightarrow \begin{cases} D_f = [b, +\infty) \\ R_f = (-\infty, 5] \end{cases} \Rightarrow ab = ?$ بیشترین $\Rightarrow a + 1 - \sqrt{2x+3} = 5 \Rightarrow a - \sqrt{2x+3} = 4 \to a = 4 \ , \ 2x + 3 \geq 0$ $\to x \geq -\frac{3}{2}$ $\Rightarrow D_f = [-\frac{3}{2}, +\infty) \to b = -\frac{3}{2}$ $\Rightarrow ab = 4 \times \frac{-3}{2} = -6$ 2	۹
$f(x) = 2\sqrt{x+1} + 4\sqrt{1-x}$; $x \geq -1$, $x \leq 1 \Rightarrow [-1, 1]$ / $f(x) + g(x) = 3\sqrt{2 + 2\sqrt{1-x^2}}$; $\sqrt{1-x}, \sqrt{x+1}$ 1,5 $\Rightarrow 3\sqrt{2 + 2\sqrt{1-x}\sqrt{x+1}} = 3\sqrt{(1-x)+(1+x) + 2\sqrt{1-x}\sqrt{x+1}} = 3\sqrt{(\sqrt{1-x} + \sqrt{x+1})^2} \Rightarrow 3\sqrt{x+1} + 3\sqrt{1-x}$ $1 + 1 + x - x$ $f(x) + g(x) = 3\sqrt{x+1} + 3\sqrt{1-x} \Rightarrow g(x) = 3\sqrt{x+1} - 2\sqrt{x+1} - 3\sqrt{1-x} - 4\sqrt{1-x} \Rightarrow \sqrt{x+1} - \sqrt{1-x}$ $\Rightarrow D_f = D_g \to = [-1, 1] \Rightarrow ✓$ / $y = \frac{f(x)}{2} - \frac{g(x)}{3} = ? \to \frac{f(x) - 2g(x)}{6} = \frac{(2\sqrt{x+1} + 4\sqrt{1-x}) - (2\sqrt{x+1} - 2\sqrt{1-x})}{6}$	۱۰



$\Rightarrow \frac{\sqrt{1-x}}{?} \to x \leq 1 \quad : R_f = [0, +\infty)$

$D_f = (-\infty, 1]$

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