نام و نام خانوادگی ...آرین حبیبی... پاسخنامه تشریحی تکلیف شماره ...۸... کلاس ...یازدهم تجربی B...

۱

$1-x^2 \geq 0 \Rightarrow D_f=[-1,1]$

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

۲

$f(x)=2x-1 \quad D_f=[3,+\infty) \Rightarrow R_f=[5,+\infty) \ (\mathrm{I})$

$g(x)=\frac{1}{3}x+3 \quad D_g=(-\infty,3] \Rightarrow R_g=(-\infty,4] \ (\mathrm{II})$

$\Rightarrow \mathrm{I} \cup \mathrm{II}=(-\infty,4] \cup [5,+\infty)$

۳

$-\frac{x^2}{2}+x+3>\frac{3}{2} \to -x^2+2x+6>3 \to -x^2+2x+3>0 \longrightarrow$

$-(x-3)(x+1)>0$

$$\begin{array}{ccccc} & -1 & & 3 & \\ \hline - & 0 & + & 0 & - \end{array}$$

$\Rightarrow (a,b)=(-1,3)$

$\Rightarrow \sqrt{3-(-1)}=\sqrt{4}=2$

۴

$$\begin{array}{cccc} 1 & & 2 & & 3 \\ \hline -4x+8 & -2x+6 & 2x-2 & 4x-8 \end{array}$$

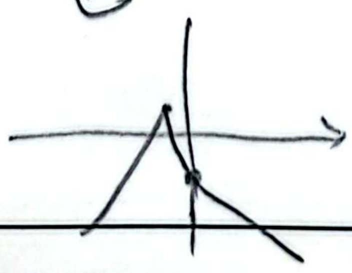
$[4,+\infty)$ $\quad (2,4) \quad [2,4) \quad [4,+\infty)$

$\min R_f=2$

۵

$$\begin{array}{ccccc} & -1 & & 0 & \\ \hline x+2 & & -3x-2 & & -x-2 \\ & 1 & & -2 & \end{array}$$

$R_f=(-\infty,1]$



۶

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

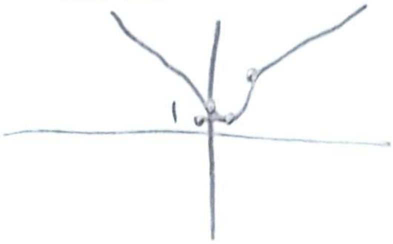
$\Rightarrow \Delta \geqslant 0 \rightarrow (5-y)^2 - 4(m-y) \geqslant 0 \rightarrow y^2 - 6y + 25 - 4m$

$\xrightarrow{-\frac{b}{2a}=3} 9 - 18 + 25 - 4m \Rightarrow 4m \geqslant 16 \Rightarrow m \leq 4$

$\xrightarrow{m \neq 4 \text{ زیرا در این صورت [illegible]}} m = \{1, 2, 3\}$

۷

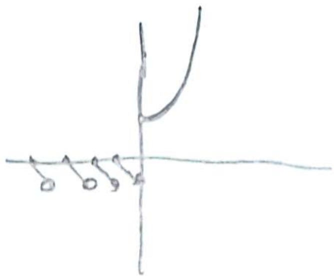
$f(x)\begin{cases} x+2 : x \geqslant 3 \\ x^2 - 3x + 3 : 0 \leq x < 3 \\ |x| + 2 : x < 0 \end{cases}$



$R_f = [1, +\infty)$

۸

$f(x)\begin{cases} x^2 + 4x + 3 : x \leq 0 \\ [2x] - 2x : x > 0 \end{cases}$



$R_f = (-1, 0] \cup [3, +\infty)$

۹

$y = a + 1 - \sqrt{2x+3} \qquad D_f = [b, +\infty) \rightarrow 2x + 3 \geqslant 0 \rightarrow x \geqslant -\frac{3}{2}$

$\Rightarrow b = -\frac{3}{2}$

$R_f = (-\infty, 5] \rightarrow \underbrace{-\sqrt{2x+3}}_{max = 0} + a + 1 = 5$

$\Rightarrow a + 1 = 5 \Rightarrow a = 4 \qquad ab = 4 \times (-\frac{3}{2}) = -6$

۱۰

$f(x) + g(x) = 3\sqrt[3]{(\sqrt{x+1} + \sqrt{1-x})^3} \rightarrow f(x) + g(x) = 3\sqrt{x+1} + 3\sqrt{1-x}$

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

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

$\xrightarrow{D_f = [-1, 1]} R = [0, \sqrt{2}]$