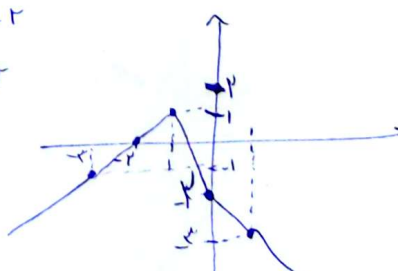


نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره: کلاس: نام: B

$rg = \{(-1, 2), (0, 1), (2, 0), (1, 2)\}$ $\sqrt{1-x^2} = 0 \Rightarrow 1-x^2 = 0 \Rightarrow x = \pm 1$ $(1-x^2) = 0 \Rightarrow Rf = (-\infty, 1]$ $f = \{(-1, 0), (0, 1), (1, 0)\}$ $rg - rf = \{(-1, 2), (0, 1), (1, 2)\} \Rightarrow Rf = \{1, \omega, \epsilon\}$ $r + \omega + \epsilon = 11$	1
$f(x) = 2x - 1 \rightarrow x = 2 \Rightarrow y = 3 \Rightarrow y \in [3, +\infty)$ $Df = [2, +\infty)$ $g(x) = \frac{1}{x} + 2 \Rightarrow Dg = (-\infty, 2] \Rightarrow x = 2 \rightarrow (-\infty, 2]$ $Rf \cup Rg = (-\infty, 2] \cup [3, +\infty)$	2
$-\frac{x^2}{r} + x + r > \frac{r}{r} \Rightarrow -\frac{x^2}{r} + x > -\frac{r}{r} + \frac{x^2}{r} - \frac{r}{r} < 0$ $x^2 - rx - r < 0 \Rightarrow (x+1)(x-r) < 0 \Rightarrow \frac{1}{r} < x < r \Rightarrow (-1, r)$ $\sqrt{b-a} = \sqrt{c} = r$	3
$y = x-1 + x-2 + 2x-5 $ $\begin{cases} 1 \leq x < 2 & -2x+7 \\ 2 \leq x < 2.5 & 2x-1 \\ x \geq 2.5 & 4x-11 \end{cases}$ $\begin{matrix} x < 1 & y < 5 \\ x = 1 & y = 2 \\ x = 2 & y = 2 \\ x = 2.5 & y = 2.5 \end{matrix}$	4
$x \begin{cases} \rightarrow 0 \\ \rightarrow -1 \end{cases}$ $\begin{cases} x > 0 & x - 2x - 2 = -x - 2 \\ -1 \leq x \leq 0 & -x - 2x - 2 = -3x - 2 \\ x < -1 & -x + 2x + 2 = x + 2 \end{cases}$ $Rf = (-\infty, 1]$ 	5

$$xy + y^2 = x^2 + a + m \Rightarrow x^2 + (a-y)x + (m-y) = 0 \quad \Delta \geq 0$$

$$(a-y)^2 - 4(m-y) \geq 0 \Rightarrow y^2 - 4y + a^2 - 4m + 4y \geq 0 \Rightarrow y^2 - 4y + a^2 - 4m \geq 0$$

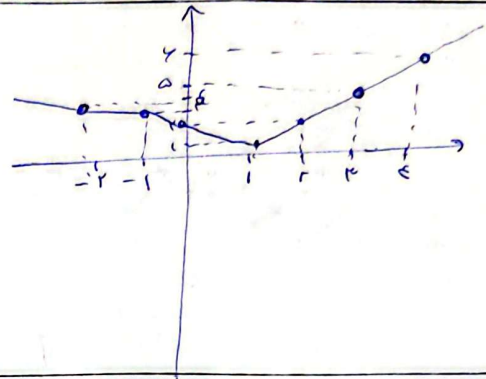
$$\Rightarrow \Delta = 16 - 4(a^2 - 4m) \leq 0 \Rightarrow 4 \geq m$$

$$m \leq 4 \Rightarrow \frac{x + a + m}{x+1} = x + c \Rightarrow \frac{x+1}{x} \Rightarrow m = \{b, 4, 4\}$$

$\frac{1}{x} = \frac{1}{x+1} + \frac{1}{x+1}$

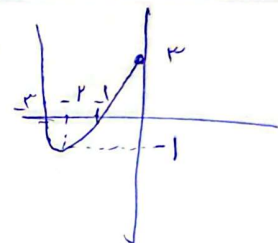
$$f(x) = \begin{cases} x+1 & x \geq 1 \\ x^2 - 2x + 1 & 0 \leq x < 1 \\ |x| + 1 & x < 0 \end{cases}$$

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



$$f(x) = \begin{cases} x^2 + \epsilon x + 1 & x \leq 0 \\ [x] - x & x > 0 \end{cases}$$

$\hookrightarrow -1 \leq [x] - x < 0 \Rightarrow D = [-1, 0]$



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

$$y = a + 1 - \sqrt{4x+4} \quad D = [b, +\infty) \quad R = [-\infty, a]$$

$$4x+4 \geq 0 \Rightarrow 4x \geq -4 \Rightarrow x \geq -1, a \quad b = -1, a$$

$$ab = -4$$

$$\text{if } b = -1, a \Rightarrow \sqrt{0} = 0$$

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

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

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

$$y = \sqrt{x+1} + \sqrt{1-x} - \sqrt{1+x} - \sqrt{1-x} \Rightarrow -1 \leq y \leq 1$$

$x = -1 \quad y = 0$
 $x = 1 \quad y = 0$
 $x = 0 \quad y = 1$

$$R_f = [0, \sqrt{2}]$$