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نام و نام خانوادگی آید پاسخنامه تشریحی تکلیف شماره کلاس B

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

$$g.f = \{(-1, 2), (0, 4), (1, 4)\} \checkmark \quad \text{دقت!} \quad \boxed{II} \quad \text{عز}$$

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$$f(x) = 2x - 1 \quad R_f = [3, +\infty) \Rightarrow R_f = [4, +\infty) (I)$$

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

$$\Rightarrow I \cup II = (-\infty, 4] \cup [4, +\infty) \checkmark$$

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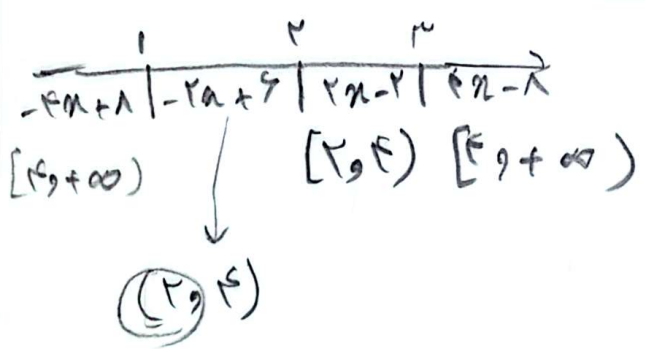
$$-\frac{x^2}{2} + x + 3 > \frac{1}{2} \rightarrow -x^2 + 2x + 6 > 1 \rightarrow -x^2 + 2x + 5 > 0 \rightarrow$$

$$-(x-3)(x+1) > 0 \quad \frac{-1}{-} + \frac{3}{-} \Rightarrow (a, b) = (-1, 3)$$

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

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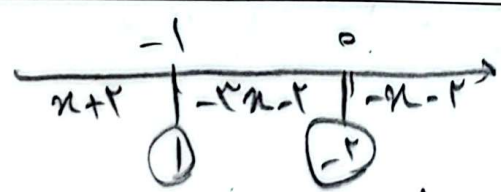
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$$\min R_f = 2 \checkmark$$

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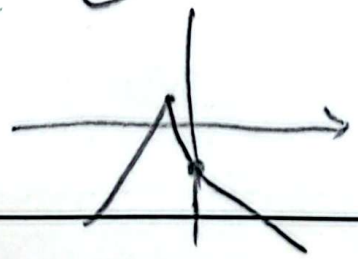
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$$R_f = (-\infty, 1] \checkmark$$

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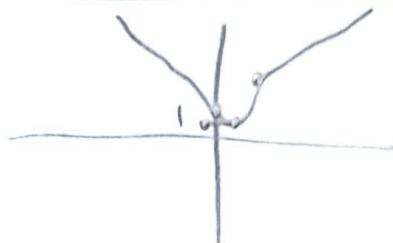
$$y^2 + y = x^2 + a x + m \Rightarrow x^2 + (a-y)x + (m-y) = 0$$

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

$$\frac{-b}{2a} = 1 \rightarrow a - 1 + 4a - 4m \geq 0 \Rightarrow 5a - 4m \geq 0 \Rightarrow m \leq \frac{5a}{4}$$

$$m \in \mathbb{Z} \text{ و } a=1 \rightarrow m \in \{1, 2, 3\} \checkmark$$

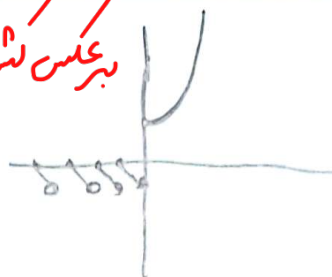
$$f(x) = \begin{cases} x+2 & : x \geq 1 \\ x^2 - 2x + 2 & : 0 \leq x < 1 \\ |x|+2 & : x < 0 \end{cases}$$



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

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

برعکس نشود!



$$R_f = \cancel{[1, +\infty)} \cup \cancel{[2, +\infty)} \\ [-1, +\infty)$$

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

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

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

$$\Rightarrow a+1 = a \Rightarrow a = 1 \checkmark \quad \text{و } b = f\left(-\frac{3}{2}\right) = -\frac{5}{2} \checkmark$$

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

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

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

$$D_f = [1, 1] \rightarrow R = [0, \sqrt{2}] \checkmark$$