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تکلیف Δ
یاز (مهم) B
۱۷, ۱۵

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

$$R = \{2, 4, 5\} \quad \checkmark \quad \text{دقت!} \quad \boxed{\text{II}} \quad \text{مجموعه}$$

۱, ۵

$$\left. \begin{array}{l} f(x) = x-1 \xrightarrow{D_f: [2, +\infty)} R_f = [\infty, +\infty) \\ g(x) = \frac{1}{x} x+2 \xrightarrow{D_g: (-\infty, 1]} R_g = (-\infty, 2] \end{array} \right\} R_f \cup R_g = (-\infty, 2] \cup [\infty, +\infty) \quad \checkmark$$

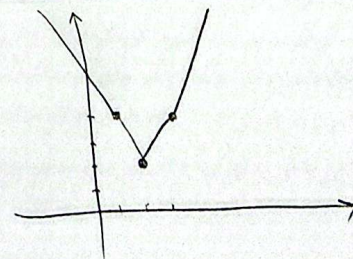
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$$-\frac{nx^2}{x} + nx+2 \geq \frac{x}{x} \Rightarrow x^2 - 2x - 2 \leq 0 \Rightarrow (x-2)(x+1) \leq 0$$

$$\Rightarrow \begin{cases} a = -1 \\ b = 2 \end{cases} \quad \sqrt{b-a}, \sqrt{4-(-1)} = \sqrt{5} = 2 \quad \checkmark$$

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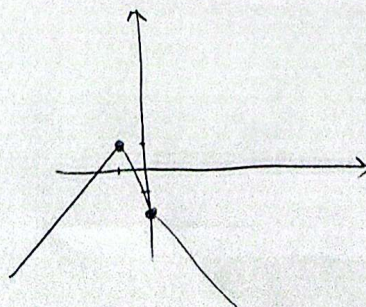
$$\begin{array}{c|c|c|c} 1 & 2 & 3 & 4 \\ \hline 1-n+2-n+2 & 2-1+2-n+2 & 3-2+2-n+2 & 4-3+2-n+2 \\ \hline -n+1 & -n+4 & -n+2 & -n+1 \end{array}$$



$$\Rightarrow y_{\min} = 2 \quad \checkmark$$

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$$\begin{array}{c|c|c|c} -1 & 0 & 1 & 2 \\ \hline -2-n+2 & -n-1-n-2 & n-2-n-2 & n-2-n-2 \\ \hline n+2 & -n-2 & -n-2 & -n-2 \end{array}$$



$$\Rightarrow R = (-\infty, 1] \quad \checkmark$$

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$$y(n+1) = n^2 + 5n + m \Rightarrow n^2 + (5-y)n + m - y = 0 \quad \Delta_1 \geq 0$$

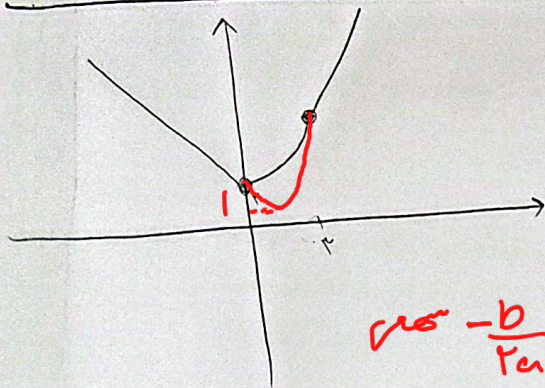
$$\Rightarrow \Delta_1 = (5-y)^2 - 4(m-y) = y^2 - 10y + 25 - 4m + 4y = y^2 - 6y + 25 - 4m \geq 0$$

$$34 - 100 + 14m < 0 \rightarrow m < 4$$

$$\left. \begin{array}{l} \Delta < 0 \\ \alpha > 0 \end{array} \right\} \text{ + علامت < }$$

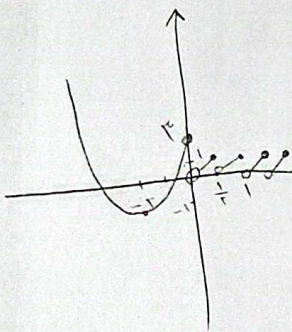
انہ $m = 4$ ہاں ۳ ازبج حذف ہیں و

دینہ $\mathbb{R}$ میں ہیں $m = \{1, 2, 3\}$



$$\Rightarrow R = [1, +\infty)$$

$$-\frac{b}{2a} = 1$$



$$\Rightarrow R = [-1, +\infty) \checkmark$$

$$2n+3 \geq 0 \Rightarrow n \geq -\frac{3}{2} \Rightarrow b = -\frac{3}{2} \checkmark \Rightarrow a+1 - \sqrt{2b+3} = a+1 - \Delta \Rightarrow a = \Delta \checkmark$$

$$\Rightarrow ab = \Delta \times \left(-\frac{3}{2}\right) = -\frac{3}{2} \checkmark$$

$$g(n) = 2\sqrt{2+2\sqrt{1-n^2}} - 2\sqrt{n+1} - 4\sqrt{1-n}$$

راہ پائیدار روہم بخون

$$\frac{f(n)}{1} - \frac{g(n)}{2} = \frac{\sqrt{n+1} + 2\sqrt{1-n} - 2\sqrt{2+2\sqrt{1-n^2}} + 2\sqrt{n+1} + 4\sqrt{1-n}}{2}$$

$$= \frac{2\sqrt{n+1} + 4\sqrt{1-n} - 2\sqrt{2+2\sqrt{1-n^2}}}{2} = \sqrt{n+1} + 2\sqrt{1-n} - \sqrt{2+2\sqrt{1-n^2}} \quad D_f = [-1, 1]$$

$$\begin{aligned} n=1 &\Rightarrow y=0 \\ n=0 &\Rightarrow y=1 \\ n=-1 &\Rightarrow y=2\sqrt{2}-\sqrt{2-2\sqrt{1-1}} = \sqrt{2} = 2\sqrt{2}-\sqrt{2} = \sqrt{2} \end{aligned}$$

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

دقتاً