

19, 170

عملی کار

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

سوال

$$Df = [-1, 1] \rightarrow Dg \cap Df = \{-1, 0, 1\}$$

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$$\rightarrow yg \begin{cases} x \in A \\ x \in B \\ x \in C \end{cases} \quad \text{و} \quad \mu f \begin{cases} x \in A \\ x \in B \\ x \in C \end{cases}$$

$$\rightarrow yg - \mu f \begin{cases} x - 0 = y \\ x - 1 = 0 \\ x - 1 = 1 \end{cases} \rightarrow Rg = \{y, 0, 1\}$$

$$f(x) = x - 1 \quad [1, +\infty) \rightarrow x, y \rightarrow y(x) - 1 = 0$$

سوال

$$\rightarrow Rf = (0, +\infty)$$

$$g(x) = \frac{1}{x} \quad x + 1 \quad (-\infty, 1] \rightarrow (-\infty, 1] = Rg$$

2

$$\cup, (R - (1, 0))$$

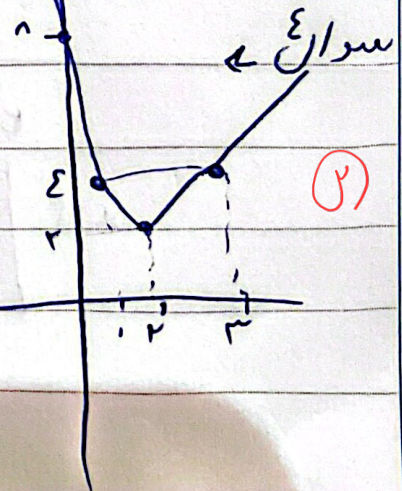
$$g = \frac{-x^2}{y} + x + 1 \rightarrow \frac{y}{x} < \frac{-x^2}{y} + x + 1$$

سوال

$$\rightarrow \frac{x^2}{y} - x - \frac{y}{x} < 0 \rightarrow x^2 - x - \frac{y}{x} < 0 \rightarrow x_1 = 1, x_2 = -1$$

2

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



2

$$\text{Min} = 1$$

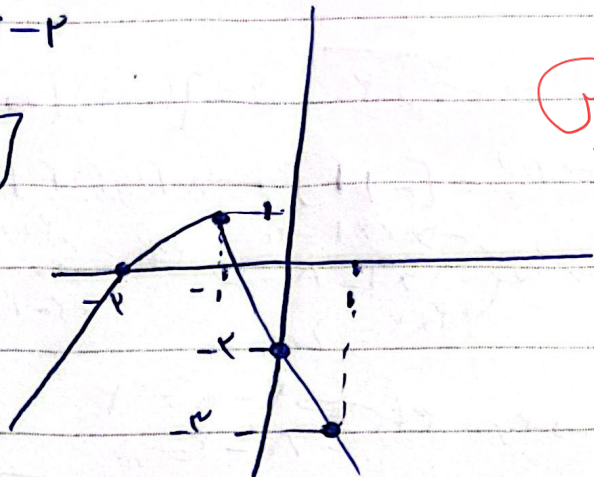
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$$\begin{array}{c|c|c} -1 & 0 & \\ \hline x+2 & \begin{array}{l} -x-4x-1 \\ -2x-2 \end{array} & \begin{array}{l} x-6x-2 \\ \rightarrow -x-2 \end{array} \\ \hline \end{array} \quad \begin{array}{l} \left[\begin{array}{c} -1 \\ 1 \end{array} \right] \quad \left[\begin{array}{c} 0 \\ -2 \end{array} \right] \quad \left[\begin{array}{c} 1 \\ -2 \end{array} \right] \end{array}$$

سوال ۷ ←

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$$(-\infty, 1] = Rf$$



$$\frac{x^2 + \omega x + m}{x+1} \rightarrow \frac{x^2 + \omega x + m}{x+1} \left| \begin{array}{l} x+1 \\ -x^2 - x \end{array} \right| \begin{array}{l} x+1 \\ x+\xi \end{array}$$

$$\frac{\xi x + m}{m - \xi}$$

سوال ۸ ←

(۲)

$$\left(y = x + 1 + \frac{m - \xi}{x + 1} \right) x + 1$$

$$y(x+1) = (x+1)(x+1) + (m - \xi)$$

$$yx + y = x^2 + \omega x + 1 + m - \xi$$

$$\rightarrow x^2 + (\omega - y)x + (1 + m - y) = 0 \rightarrow \Delta \rightarrow b^2 - 4ac$$

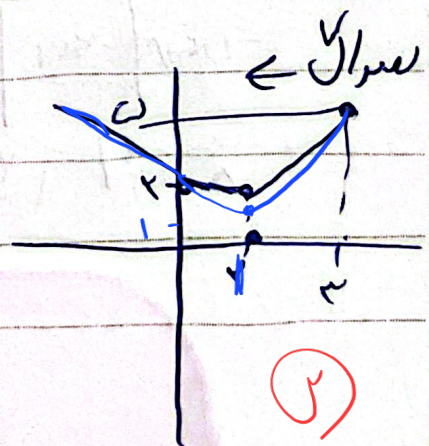
$$\rightarrow (\omega - y)^2 - 4(1 + m - y) = 0 \Rightarrow \Delta = y^2 - 2y + 4 - 4m = 0$$

$$\rightarrow \Delta < 0 \rightarrow (y - 1)^2 - 4(m - 1) < 0 \Rightarrow m < \frac{y^2 - 2y + 4}{4}$$

$$\begin{array}{c|c|c} 0 & \infty & \\ \hline -x+2 & x^2 - 6x + 2 & x+2 \\ \hline \end{array}$$

$$\rightarrow Rf = [1, \infty)$$

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$$f(x) \begin{cases} x^2 + [x+1] & x \leq 0 \rightarrow y_1 \\ [x] - x & x > 0 \end{cases} \quad \left| \begin{array}{l} -\frac{b}{2a} = -\frac{1}{2} \\ -1 \rightarrow [-1, +\infty) \end{array} \right. \leftarrow \text{سوال ٥}$$

$$1 \leq x < k+1 \rightarrow x = k \rightarrow k - k = 0 \\ k - (k+1) = -1 \rightarrow (-1, 0] \\ \rightarrow Rf, (-b, +\infty)$$

$$y = a + 1 - \sqrt{x+1} \rightarrow Df = [-\frac{1}{4}, +\infty) \leftarrow \text{سوال ٦}$$

$$b = -\frac{1}{4}$$

$$a + 1 - \sqrt{x+1} = 0 \rightarrow \sqrt{x+1} = a + 1 \rightarrow x + 1 = (a + 1)^2 \rightarrow x = (a + 1)^2 - 1$$

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

$$ab = \left(a - \frac{1}{4}\right) = \left[\frac{1}{2} - \frac{1}{4}\right] = \left[\frac{1}{4}\right]$$

$$f(x) = \sqrt{x+1} + \sqrt{1-x} \quad \begin{cases} \sqrt{x+1} \rightarrow x \geq -1 \\ \sqrt{1-x} \rightarrow 1-x \geq 0 \rightarrow x \leq 1 \end{cases} \leftarrow \text{سوال ٧}$$

$$\rightarrow [-1, 1] = Df = Dg$$

$$f(x) + g(x) = \sqrt{x+1} + \sqrt{1-x} \rightarrow \sqrt{1-x} + \sqrt{1+x} \quad \leftarrow \text{سوال ٨}$$

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

$$\rightarrow \frac{f(x)}{g(x)} = \frac{\sqrt{1-x} + \sqrt{1+x}}{\sqrt{1+x} - \sqrt{1-x}} = \sqrt{1-x} \rightarrow Rf = (0, \sqrt{2}]$$