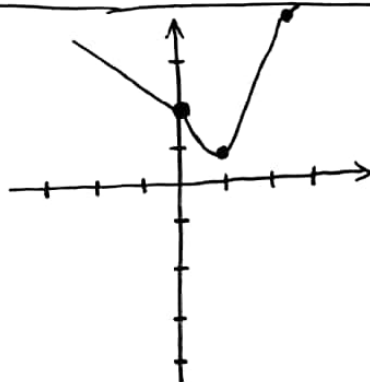


$$y = \frac{x^2 + \omega x + m}{x + 1}$$

0 - 6

پاسی و ...

$$f(x) = \begin{cases} x+2 & ; x \geq 3 \\ x^2 - 2x + 2 & ; 0 \leq x < 3 \Rightarrow \frac{-b}{2a} = 1 \\ |x| + 2 & ; x < 0 \end{cases}$$

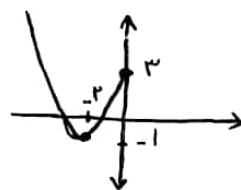


$$\Rightarrow R_f = [1, +\infty) \checkmark$$

2 - 7

$$f(x) = \begin{cases} x^2 + \varepsilon x + 3 & x \leq 0 \\ [x] - 2x & x > 0 \end{cases} \xrightarrow{(x+3)(x+1)=0} \begin{matrix} -3 \\ -1 \end{matrix}$$

$$I \cup II = [-1, +\infty) \checkmark$$



$$\Rightarrow R_f = [-1, +\infty) \quad II$$

2 - 8

$$y = a + 1 - \sqrt{2x+3} \Rightarrow D_f = [b, +\infty)$$

$$2x+3 \geq 0 \Rightarrow x \geq -\frac{3}{2} \Rightarrow x \geq \frac{-3}{2} \Rightarrow b = -\frac{3}{2} \checkmark$$

$$a + 1 - \sqrt{2 \times \frac{-3}{2} + 3} = 0 \Rightarrow a + 1 = 0 \Rightarrow a = -1 \checkmark$$

$$ab = \frac{-3}{2} \times (-1) = \frac{3}{2} \checkmark$$

2 - 9

$$f(x) = 2\sqrt{x+1} + \varepsilon\sqrt{1-x} \Rightarrow D_f = [-1, 1] \checkmark, R_f = [2\sqrt{2}, 6]$$

$$f(x) + g(x) = 3\sqrt{2+2\sqrt{1-x^2}} \Rightarrow g(x) = 3\sqrt{2+2\sqrt{1-x^2}} - 2\sqrt{x+1} - \varepsilon\sqrt{1-x} \Rightarrow D_g = [-1, 1]$$

$$\Rightarrow R_g = [-\sqrt{2}, \sqrt{2}]$$

$$y = \frac{f(x)}{g} - \frac{g(x)}{3} = -\sqrt{2+2\sqrt{1-x^2}} - \frac{\sqrt{x+1} + 2\sqrt{1-x}}{3} \Rightarrow D_g = [-1, 1]$$

$$\Rightarrow R = [-\sqrt{2}, \frac{2\sqrt{2}}{3}] \quad [0, \sqrt{2}]$$

پاسی و ...

5/25 - 10

$$f(x) = \sqrt{1-x^2} \quad g = \{(-1,1), (0,4), (1,0), (1,2)\}$$

دقت!

(۱۵-۱)

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

جمع II

$$x = -1 \Rightarrow g(-1) = 1, f(-1) = 0$$

$$x = 0 \Rightarrow g(0) = 4, f(0) = 1$$

$$x = 1 \Rightarrow g(1) = 2, f(1) = 0$$

$$f(x) = 2x-1 \Rightarrow D_f = [3, +\infty) \Rightarrow R_f = [5, +\infty)$$

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

$$R_f \cup R_g = (-\infty, 4] \cup [5, +\infty) = \mathbb{R} - (4, 5) \checkmark$$

(۲)

$$y = \frac{-x^2}{2} + x + 3 \quad \frac{-x^2}{2} + x + 3 > \frac{3}{2} \Rightarrow -x^2 + 2x + 6 > 3 \Rightarrow -x^2 + 2x + 3 > 0$$

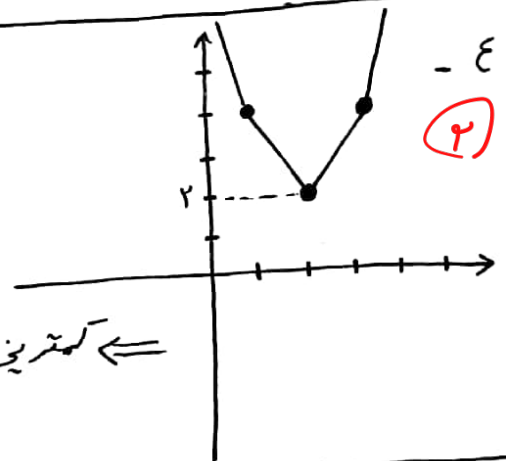
$$\Delta = 4 + 12 = 16$$

$$\text{ریشه ها} = \frac{-2 \pm 4}{-2} = 3, -1 \Rightarrow \begin{array}{c|c|c} -1 & 3 & \\ \hline - & + & - \\ & ج & \end{array} \Rightarrow (a, b) = (-1, 3) \Rightarrow a = -1, b = 3$$

(۲)

$$\text{جواب: } \sqrt{b-a} = \sqrt{3-(-1)} = \sqrt{4} = 2 \checkmark$$

$$y = |x-1| + |x-3| + |2x-4| \Rightarrow \begin{cases} 4x-8 & x > 3 \\ 2x-2 & 1 < x < 3 \\ 4-2x & 1 < x < 3 \\ 8-4x & x < 1 \end{cases}$$

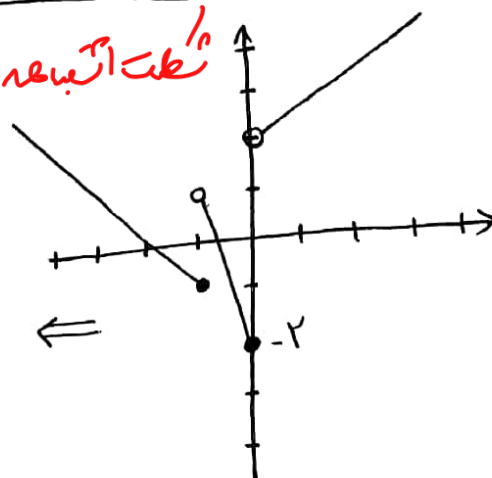


(۲)

کمترین مقدار عبارت عدد ۲ است ✓

$$y = |x| - 2|x+1| \Rightarrow \begin{cases} -x-2 & x > -1 \\ -3x-2 & 0 \leq x < -1 \\ x+2 & x < 0 \end{cases}$$

خطات آینه



(۱)

$$R_f = [-2, +\infty) \checkmark$$

$$(-\infty, 1]$$