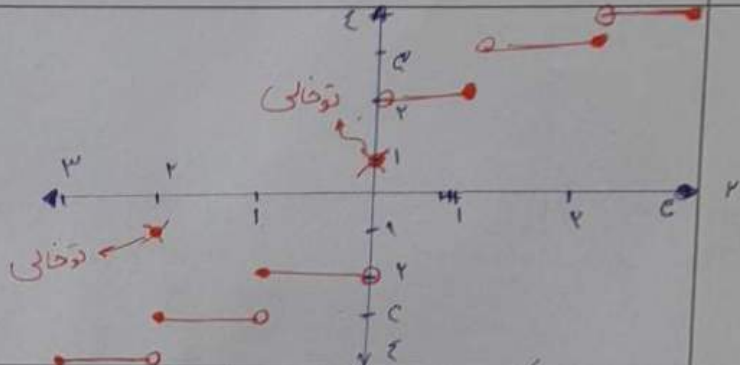


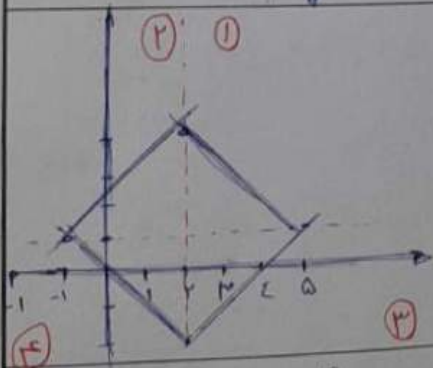
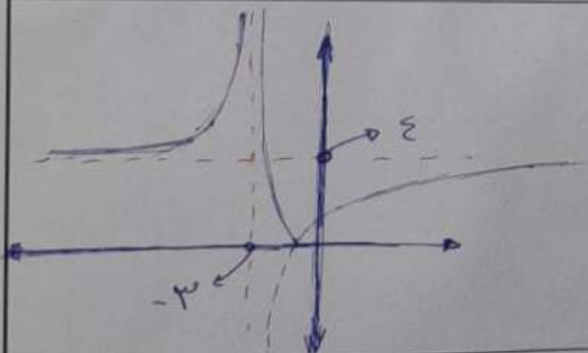
$$2 \sin^2 x - 1 = 2 \square - 1 \rightarrow \max_{\square} = 1, \min_{\square} = 0 \rightarrow R_{f(x)} = [-1, 1]$$

$$3 \cos^2 x - 4, 3 \cdot 0 - 4 \rightarrow \max_{\square} = 1, \min_{\square} = -1 \rightarrow R_{f(x)} = [-1, 1]$$

$$\frac{x}{|x|}, y \rightarrow \begin{cases} x > 0 \Rightarrow y = 1 \\ x < 0 \Rightarrow y = -1 \end{cases}$$



لغزدار هموار است با اثر قدر مطلق
مخالف افقی = $\frac{1}{x}$
مخالف عمودی = $-\frac{1}{x}$ در $\frac{1}{x}$ مخرج



مربع

$$\begin{aligned} x - 2 + y - 1 &= 3 \rightarrow y = 4 - x & (1) \\ x - 2 + 1 - y &= 3 \rightarrow y = x - 4 & (2) \\ 2 - x + y - 1 &= 3 \rightarrow y = x + 2 & (3) \\ 2 - x + 1 - y &= 3 \rightarrow y = -x & (4) \end{aligned}$$

$$\frac{1}{x} + \frac{1}{x} = a \rightarrow f(x) = a + 2\sqrt{a} \rightarrow a \in [1, \infty) \rightarrow R_{f(x)} = [1 + 2\sqrt{1}, \infty)$$

$$y = -\sin^2 x + 2 \sin x + 3 \begin{cases} \sin x = 1 \rightarrow y = 4 \\ \sin x = -1 \\ \sin x = \frac{-2 \pm \sqrt{4 - 4(-1)}}{-2} = -1 \end{cases} \rightarrow R_{f(x)} = [-1, 4]$$

اعضای برد تشکیل یک دنباله حسابی با قدر نسبت $-\frac{1}{3}$ و $n=9$ جمله می دهد

$$9\frac{1}{3}, 9\frac{1}{6}, 9\frac{1}{9}, \dots, 7\frac{1}{6}, 7 \rightarrow \text{مجموع} = \frac{9}{3} \times \left(7 + 9\frac{1}{3}\right) = 75$$

$n=1 \quad n=2 \quad n=3 \quad n=4 \quad n=8 \quad n=9$

تابع خطی است و $a=0$ (با ریشه بداند)

$$\sqrt{bx+c} = \frac{r}{-1/3 +} \Rightarrow \frac{-c}{b} = 2 \rightarrow f(c) = 1 \rightarrow \sqrt{3b+c} = 1 \rightarrow$$

$$\rightarrow \sqrt{3b-1b} = 1 \rightarrow b=1, c=2 \rightarrow g(x) = \sqrt{x^2+2} \rightarrow$$

$$R_{g(x)} = [r, \infty) \Rightarrow R_{g(x)} = \sqrt{[r, \infty)} \rightarrow R_{g(x)} = [r, \infty)$$

$$f(x) \neq 1 \neq \frac{x(x+2)(x-2)}{(x+2)} \rightarrow 1 \neq x^2-2x \rightarrow x^2-2x-1 = (x-2)/(x+2) \rightarrow$$

$$\rightarrow x \neq \{-2, 2\} \rightarrow \boxed{a=-2, b=2}$$

$$R_{f(x)} = [y_{\text{ext}} \infty) - \{1\} \rightarrow c = y_{\text{ext}} \Rightarrow \frac{-b}{2a} = \frac{+2}{1} = 2 \rightarrow f(2) = -1 \Rightarrow$$

$$\Rightarrow c = -1 \Rightarrow f\left(\frac{a+b}{2c}\right) = f(-1) = 1+2 = 3$$

چون تابع خطی است - عبارت باید یکجمله کامل باشد

$$\sqrt{(x-2)^2} = 3 \Rightarrow x^2 - 4x + 12x - 1 \rightarrow a = -4, b = 12$$

$$y = x-2 \mid x \in [-4, 12] \rightarrow R_{f(x)} = [-1, 1]$$

x	$\frac{1}{x}$	$(\frac{1}{x}, 1)$	$(1, \frac{1}{x})$	$(\frac{1}{x}, 2)$
$[x]$	0	0	1	1
$[x+\frac{1}{x}]$	1	1	1	2

سه پاره خط

