

$$y = \frac{1}{n} + \frac{1}{n+1} + \frac{1}{n+2} = \frac{2(n+1)}{n(n+1)} \xrightarrow{n \neq -1} \frac{1}{n} \quad -1 \quad 1401 \diamond 2022$$

نداریم $y=0$ داریم $y=-2$ $\Rightarrow n=-1$ نداریم $\frac{1}{n}$ $\Rightarrow$ مقدار منفی

$$\Rightarrow \mathcal{R}_f = \mathcal{R} - \{-2, 0\} \Rightarrow a+b = -2+0 = -2$$

$$\frac{(\sqrt{x}-2)(\sqrt{x}-1)}{(\sqrt{x}-1)(\sqrt{x}-1)} \xrightarrow{x \neq 1} \frac{\sqrt{x}-2}{\sqrt{x}-1} \quad \begin{cases} \min = 2 \\ \max = 1 \end{cases} \quad -9$$

$$\mathcal{R}_f = (-\infty, 1) \cup [2, +\infty)$$

$$\frac{(n-1)(n+1)(n+2)}{(n-1)(n+1)} \xrightarrow{n \neq -1, 1} n+2 \Rightarrow \mathcal{R} = \mathcal{R} \quad -10$$

$$\textcircled{-1}, \textcircled{1} \Rightarrow \begin{cases} n=-1 \Rightarrow -1+2=1 \\ n=1 \Rightarrow 1+2=3 \end{cases} \Rightarrow \mathcal{R}_f = \mathcal{R} - \{1, 3\}$$

۱- $x = t \Rightarrow y = 2(x - [x]) \Rightarrow y = 2(x - [x]) \Rightarrow y = 2(x - [x])$ (الف)

$0 < 2(t - [t]) < 2 \Rightarrow 0 < t - [t] < 1$

$R_f = [0, 2)$

ب) $y = x + \varepsilon \Rightarrow -1 < x < 1 \Rightarrow 0 < y < 2$

$\Rightarrow 0 < y < 2 \Rightarrow R_f = [0, 2)$

۲- $R_f = [0, 2) \cup (2, +\infty)$

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۳- $t > 0 \Rightarrow R = [2, +\infty)$
 $t < 0 \Rightarrow R = (-\infty, -2]$

$\Rightarrow x > 0 \Rightarrow x + \sqrt{x} = [2, +\infty) \Rightarrow t + \sqrt{t} = x + \sqrt{x}$
 $R = [2 + 2\sqrt{2}, +\infty)$

ب) $(1 - \sin x)(1 + \sin x) = -\sin^2 x + 1 = 1 - \sin^2 x = \cos^2 x$
 $\Rightarrow R = [-1, 1]$

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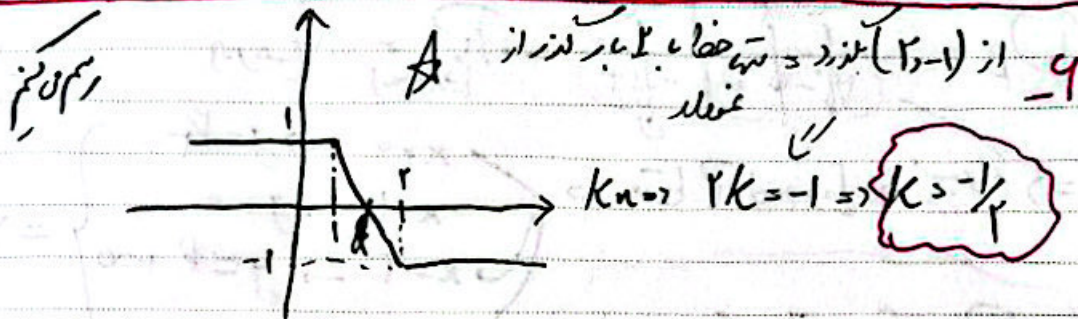
$$R = \{r_1, r_2, r_3, \dots, r_n\}$$

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$$\text{مجموع مربعات} = \frac{(r_k + r_1/c)}{r} \times 9 = 175$$

$$\text{از این دو معادله} \Rightarrow a=0 \quad \left\{ \begin{array}{l} \sqrt{r_b+c} = 0 \\ \sqrt{r_b+c} = 1 \end{array} \right\} \Rightarrow b=1, c=-1$$

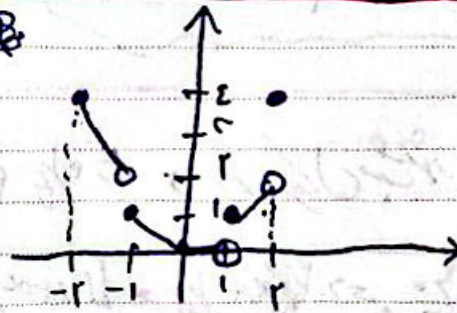
$$g(x) = \sqrt{x^2 + 2} \quad -4(x^2 - 2) \Rightarrow \sqrt{x^2 + 2} \rightarrow R_{g_1} = [1, +\infty)$$



الف)

$$\begin{aligned} -2 < x < -1 &\rightarrow -2x \rightarrow \textcircled{+} \\ -1 < x < 0 &\rightarrow -x \rightarrow \textcircled{+} \\ 0 < x < 1 &\rightarrow 0 \rightarrow \textcircled{+} \\ 1 < x < 2 &\rightarrow x \rightarrow \textcircled{+} \\ x = 2 &\rightarrow 2x \rightarrow \textcircled{+} \end{aligned}$$

$$R = [0, 2] - \{1\}$$



ب)

$$\begin{aligned} -2 < x < 0 &\rightarrow -x^2 - x \\ 0 < x < 2 &\rightarrow x^2 - x \end{aligned}$$

$$R_f = [-1, 2]$$

