

نام، نام خانوادگی: کامیار پوری دوازدهم تجربی پسر A پاسفنا کمالی شماره ۴

$$\text{الف)} \quad 2\left(\frac{2}{3} - \left[\frac{2}{3}\right]\right) \rightarrow 0 \quad \left\langle 2 - 2\left[\frac{2}{3}\right] \right\rangle 2 \Rightarrow 0 \leq y < 4 \Rightarrow R_f = [0, 4] \quad (1)$$

$$0 \leq \omega - [\omega] < 1 \Rightarrow \text{همواره}$$

$$\text{ب)} \quad \log y - \sin 2 - \epsilon = 0 \Rightarrow \log y = \sin 2 + \epsilon \quad -1 \leq \sin 2 \leq 1$$

$$10^{-1} \leq \sin 2 + \epsilon \leq 10^0 \quad 10^{-1} \leq y \leq 10^0 \Rightarrow R_f = [10^{-1}, 10^0]$$

(۲ قدری یو)

$$\frac{2^x - 4}{2^x - 9} \begin{cases} \min \Rightarrow 2^x = 0 \Rightarrow \left(\frac{4}{9}\right) \\ \max \Rightarrow 2^x = \infty \Rightarrow 1 \end{cases} \sqrt{(-\infty, \frac{4}{9}) \cup (1, \infty)} \xrightarrow[\text{ادیکال}]{\text{دایره}} \left[0, \frac{2}{3}\right] \cup [1, \infty)$$

$$\Rightarrow a = 0 \quad b = \frac{2}{3} \quad c = 1 \Rightarrow a + b + c = \frac{5}{3}$$

$$\sqrt{2} \frac{1}{2} = 1 + \frac{1}{2} \Rightarrow f(x) = (x+1)^2 - 1 \rightarrow (\sqrt{2} \frac{1}{2} + 1)^2 - 1 \quad \min = \sqrt{2} - 1$$

$$\text{الف)} \quad 2 + \frac{1}{2} \geq 2 \Rightarrow 2 + 2\sqrt{2} \leq y < \infty \Rightarrow R = [2 + 2\sqrt{2}, \infty)$$

$$\text{ب)} \quad -\sin^2 x + 2\sin x + 3 = y \quad \begin{cases} \sin x = -1 \\ \sin x = +1 \\ \sin x = \frac{1}{2} \end{cases} \quad \begin{cases} y = 0 \\ y = 4 \\ y = 4 \end{cases} \Rightarrow R_f = [0, 4]$$

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$$9 \times 10 + (-\frac{1}{3}) + (2 + -\frac{1}{3}) + (3 + -\frac{1}{3}) + \dots + (9 + -\frac{1}{3}) = 90 + 8 \times -\frac{1}{3} = 88 \frac{2}{3}$$

$$\text{جواب} = \{1, 2, 3, 4, 5, 6, 7, 8, 9\} \quad \text{فکتوریل} \Rightarrow 1 \times \dots \times 9 = 362880 \quad (4)$$

