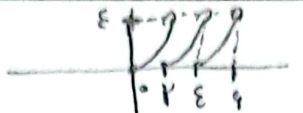
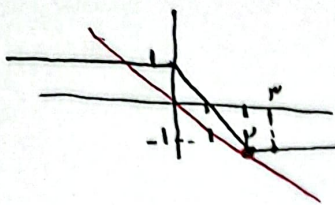


نام و نام خانوادگی: ایمانی پوران فرد پاسخنامه تشریحی تکلیف شماره ۴ کلاس: ۱۳۹۸/۰۵/۰۸ A

$y = \sqrt{\left(\frac{x}{4} - \left[\frac{x}{4}\right]\right)^2} =$	 $R_f = [0, 4]$	الف
$\log y = \sin x + \varepsilon \Rightarrow$ $\Rightarrow R_f = [1, \dots, 1, \dots]$	$\log y = \sin x + \varepsilon \Rightarrow$ $\Rightarrow R_f = [1, \dots, 1, \dots]$	ب ۱
$y = \sqrt{\frac{x^2 - 4}{x^2 - 1}} \Rightarrow y' = \frac{x^2 - 4}{x^2 - 1} \Rightarrow y^{x^2} - 4y^2 = x^2 - 4 \Rightarrow y^{x^2} - x^2 = 4y^2 - 4$ $\textcircled{1} \quad y \neq 0 \Rightarrow x^2 = \frac{4y^2 - 4}{y^2 - 1} \Rightarrow x = \pm \sqrt{\frac{4y^2 - 4}{y^2 - 1}} \Rightarrow x = \sqrt{\frac{(y-1)(y+1)}{(y-1)(y+1)}} \cdot \frac{-1 - \frac{y}{y+1} + 1}{+1 - \frac{y}{y+1} - 1 + \frac{y}{y+1} + 1}$ $\textcircled{2} \cap \textcircled{1} = \left[\begin{matrix} 0 & \frac{4}{3} \end{matrix} \right] \cup (1, +\infty) \Rightarrow a+b+c = 1 + \frac{4}{3} + 1 = \frac{10}{3}$	$\Rightarrow R_f = [0, 4]$	۲
$f(x) = x + \frac{1}{x} + \sqrt{x + \frac{1}{x}} = x^2 + 2x$ $\Rightarrow R_f = [2 + 2\sqrt{2}, +\infty)$	$\begin{matrix} \max & = & +\infty \\ \min & = & \sqrt{2} \end{matrix}$ $2 + \sqrt{2} = 2(1 + \sqrt{2})$	الف ۳
$y = 3 + 2 \sin x - \sin x - \sin^2 x = -\sin^2 x + 2 \sin x + 3$ $\begin{matrix} \max & \rightarrow & -1 + 2 + 3 = 4 \\ \min & \rightarrow & -1 - 2 + 3 = 0 \end{matrix} \Rightarrow R_f = [0, 4]$	$\Rightarrow R_f = [0, 4]$	ب ۳
$f(1) + f(2) + f(3) + f(4) + f(5) + f(6) + f(7) + f(8) = 9 \times \frac{1}{2} + \frac{9 \times \frac{1}{2}}{2} \times \frac{1}{2} - \frac{1}{2}$ $\Rightarrow a_0 = 1 \Rightarrow 7 \times 2$	$\Rightarrow R_f = [0, 4]$	۴
x^2 است به طریقی $[b, a]$	$\Rightarrow R_f = [0, 4]$	۵



$$f(1) = 1 \quad f(3) = -1$$

$$f(2) = -1 \quad f(0) = 1$$

خط K خطی مجهول الزامات در دو نقطه با هم دارد
رو به رو برخورد دارد پس یک قطعه به هم می‌رسد

$$K=0 \text{ و } K=2 \text{ و } y=-1 \Rightarrow K = -\frac{1}{2}$$

(2)

6

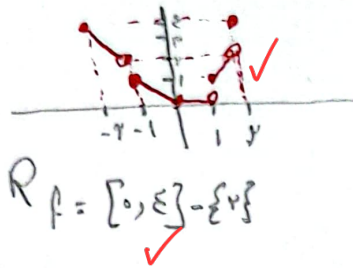
$$[-2, 0] \rightarrow y = -2x \rightarrow f(x) = 2$$

$$[-1, 0] \rightarrow y = -x$$

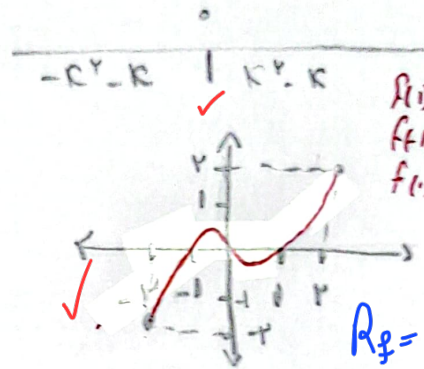
$$[0, 1] \rightarrow y = 0$$

$$[1, 2] \rightarrow y = x$$

$$\{2\} \rightarrow y = 2$$



$$R_f = [0, 2] - \{2\}$$



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

(1, NO)

7

$$y = \frac{(K+1) + (K) + (1)}{K^2 + K} = \frac{K^2 + 2K + 2}{K^2 + K} = \frac{K(K+2) + 2}{K(K+1)} = \frac{K}{K+1} \quad K \neq -1, K \neq 0$$

$$\Rightarrow R_f = \mathbb{R} - \{f(0) = 0\} = \mathbb{R} - \{0\}$$

$$a+b = -2$$

(1, NO)

8

$$\sqrt{x} = t \Rightarrow f(x) = \frac{2^2 - 4t + 1}{t^2 - 4t + 1} = \frac{(t-1)(t-3)}{(t-1)^2} = \frac{t-3}{t-1}$$

مخرج صفری ندارد پس

$$\left. \begin{array}{l} \min = 0 \\ \max = 1 \end{array} \right\} \Rightarrow R_f = (-\infty, 1) \cup [3, +\infty)$$

(2)

9

شماره تابع f در $(K, 1)$ و $(K, 1)$ بیش از یک است (جمع فرایب)

$$\left\{ \frac{K^2 + 2K^2 - K - 2}{K^2 - K} \mid \frac{K^2 - 1}{K+2} \right\} \Rightarrow f(K) = \frac{(K^2 - 1)(K+2)}{K^2 - 1} = K+2, K \neq \pm 1$$

$$R_f = \mathbb{R} - \{f(1), f(-1)\} = \mathbb{R} - \{3, 1\}$$

$$a+b = 4$$

(2)

10