

تکلیف سمان ع

پارسین بخارانه، دوازدهم دختر B
۲۰ آئین حنی کامل نوشتار!

(۱) الف $y = \left(2 \left(\frac{x}{2} - \left\lfloor \frac{x}{2} \right\rfloor \right) \right)^2 \leftarrow$ عبارت ضرب و تقسیم در ۲

$[0, 1) \times 2 = [0, 2) \xrightarrow{\text{توان ۲}} [0, 4) = R_f$

(ب) $\log y = \sin x + 4$

$[-1, 1] + 4 \rightarrow [3, 5] \quad \log y = [3, 5]$

$y = [10^3, 10^5] \Rightarrow R_f = [10^3, 10^5] \checkmark$

$y = \frac{x^2 - 4}{x^2 - 9} \quad x^2 = [0, +\infty) \begin{cases} x^2 = 0 \rightarrow y = \frac{4}{9} \\ x^2 = +\infty \rightarrow y = 1 \end{cases} \quad (۲)$

$\rightarrow R_f = (-\infty, \frac{4}{9}] \cup (1, +\infty)$ فرج سفر می شود

$y = \sqrt{\frac{x^2 - 4}{x^2 - 9}} \rightarrow R_f = [0, \frac{2}{3}] \cup (1, +\infty)$
 $\downarrow \quad \downarrow \quad \downarrow$
 $a \quad b \quad c$

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

$\sqrt{\frac{x^2 + 1}{x}} \rightarrow x > 0 \Rightarrow x + \frac{1}{x} = [2, +\infty)$ الف (۳)

$y = \left(\sqrt{x + \frac{1}{x}} + 1 \right)^2 - 1 \Rightarrow \min = (\sqrt{2} + 1)^2 - 1 = 2 + 2\sqrt{2}$
 $R_f = [2 + 2\sqrt{2}, +\infty) \checkmark$

$y = -\sin^2 x + 2 \sin x + 3$ ب $\begin{cases} \sin x = 1 \rightarrow y = 4 \\ \sin x = -1 \rightarrow y = 0 \\ \frac{-b}{2a} = 1 \rightarrow y = 4 \end{cases}$

$R_f = [0, 4] \checkmark$

$$f(x) = 10 - \frac{x}{x^2} \quad D_f = \{x \in \mathbb{N} \mid x \leq 9\} \quad (1)$$

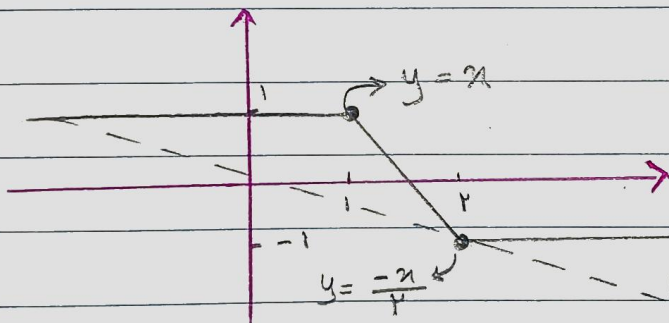
$$R_f = \left\{ \frac{29}{x}, \frac{28}{x}, \frac{27}{x}, \frac{26}{x}, \frac{25}{x}, \frac{24}{x}, \frac{23}{x}, \frac{22}{x} \right\}$$

$$\text{مجموع} = \frac{(21 + 29) \times 9}{x} = 78 \quad \checkmark$$

$$\sqrt{ax^2 + bx + c} \quad D_f = [2, +\infty) \rightarrow \text{نقطه خالی} \quad (2)$$

$$\Rightarrow a = 0 \quad \left. \begin{array}{l} f(2) = 0 \rightarrow 2b + c = 0 \\ f(3) = 1 \rightarrow 3b + c = 1 \end{array} \right\} \begin{array}{l} b = 1 \\ c = -2 \end{array}$$

$$g(x) = \sqrt{x^2 + 4} \quad \min = (0, \infty) \rightarrow R_f = [2, +\infty)$$



$$|x - 2| - |x - 1| = kx \quad (3)$$

kx خالی با سبب منفی که بر روی آن

نقاط شیب مساوی شده باشد

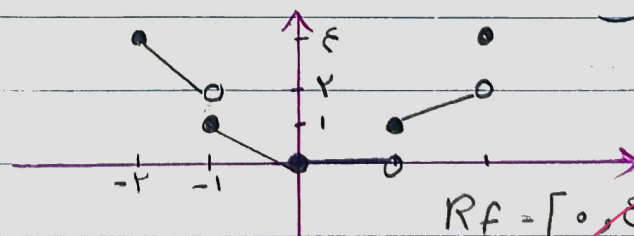
$$kx = -\frac{x}{2} \Rightarrow k = -\frac{1}{2}$$

$$[-2, -1) \rightarrow y = -2x$$

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

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

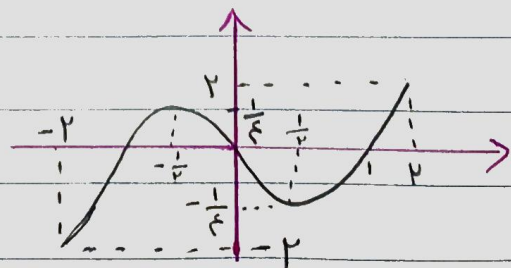
$$[1, 2) \rightarrow y = x$$



$$R_f = [0, \infty) - \{2\}$$

$$\left\{ \begin{array}{l} x > 0 \rightarrow x^2 - x \\ x < 0 \rightarrow -x^2 - x \end{array} \right.$$

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



$$y = \frac{1}{n} + \frac{1}{n+1} + \frac{1}{n^2+n} = \frac{2(n+1)}{n(n+1)}$$

$$\Rightarrow y = \frac{2}{n} \quad (n \neq 0, -1)$$

(1)
2

و غیر صفر نمی شود $y \neq 0$ و $n \neq -1 \Rightarrow y \neq \frac{2}{-1} = -2$

$$\Rightarrow R_f = \mathbb{R} - \{0, -2\} \quad a+b = 0 + (-2) = -2$$

$$y = \frac{n - \epsilon \sqrt{n} + 2}{n - 2\sqrt{n} + 1} = \frac{(\sqrt{n} - 2)(\sqrt{n} - 1)}{(\sqrt{n} - 1)^2}$$

(9)
2

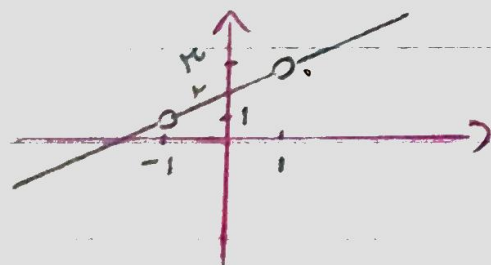
$$\Rightarrow y = \frac{(\sqrt{n} - 2)}{\sqrt{n} - 1} \quad \sqrt{n} \neq 1, n > 0$$

$$\sqrt{n} - 2 = y\sqrt{n} - y \rightarrow \sqrt{n}(1-y) = 2-y \quad \sqrt{n} = \frac{2-y}{1-y}$$

$$\sqrt{n} \rightarrow \sqrt{n} \geq 0 \quad \frac{2-y}{1-y} \geq 0 \quad \frac{1}{1-y} \geq \frac{2}{2-y} \Rightarrow R_f = (-\infty, 1) \cup [2, +\infty)$$

$$y = \frac{(n-1)(n+1)(n+2)}{(n-1)(n+1)} = n+2 \quad n \neq \pm 1$$

(10)
2



$$R_f = \mathbb{R} - \{1, 2\}$$