

نام و نام خانوادگی: ... دلا رام سیرنا باقری ... پاسخنمه تشریحی تکلیف شماره ۴ ... کلاس ... (دوازدهم دختره) ...

۱) $y = (x - 2[\frac{x}{2}])^2$ $\rightarrow$ $\log y = \frac{\sin x + \varepsilon}{[3, 5]}$ $\rightarrow R_y = [10^3, 10^5]$

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$-1 \leq \sin x \leq 1 \rightarrow 3 \leq \sin x + \varepsilon \leq 5$

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$F(x) = \sqrt{\frac{x^2 - \varepsilon}{x^2 - 9}}$ $[a, b] \cup (c, +\infty)$ $a+b+c?$

$\frac{x^2 - \varepsilon}{x^2 - 9} \rightarrow 1$ $\rightarrow \frac{9}{9} \rightarrow 1$ $\rightarrow (-\infty, \frac{3}{2}] \cup [1, +\infty)$ $\rightarrow [0, \frac{3}{2}] \cup (1, +\infty)$

$a=0, b=\frac{3}{2}, c=1 \rightarrow 0 + \frac{3}{2} + \frac{3}{2} = 3$

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۱) $F(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}}$ $y = (x - \sin x)(1 + \sin x)$

$F(x) = (\sqrt{x + \frac{1}{x}} + 1)^2 - 1$ $y = x + x \sin x - \sin x - \sin^2 x \rightarrow y = -\sin^2 x + 2 \sin x + x$

$\sqrt{x + \frac{1}{x}} = t$ $R = [2\sqrt{2}, +\infty)$ $R_y = [0, 4]$

$F(x) = (t+1)^2 - 1$ $\frac{-b}{a} = \frac{2}{2} = 1$ $\rightarrow 0 \leq x \leq 4$

$F_{\min}(x) = (2\sqrt{2} + 1)^2 - 1 = 2 + 2\sqrt{2}$ $F_{\max}(x) = +\infty$

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$F(x) = -\frac{1}{x}x + 10$ $D_F = \{1, 2, 3, \dots, 9\}$

$x=1 \rightarrow \frac{29}{3}$ $\frac{21}{3} + \frac{22}{3} + \dots + \frac{29}{3} = \frac{225}{3} = 75$

$x=2 \rightarrow \frac{21}{3}$ $(29-21) + 1 = 9$

$x=9 \rightarrow \frac{21}{3}$ $\frac{29+21}{2} \times 9 = 225$

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$F(x) = \sqrt{ax^2 + bx + c}$ $[2, +\infty)$ $F(3) = 1$ $R_g = ?$ $g = \sqrt{bx^2 + ax - c}$

$D_F = [2, +\infty)$ $F(x) = \sqrt{a(x-2)^2}$ $\rightarrow \sqrt{a}(x-2)$ $F(3) = 1 \rightarrow \sqrt{a}(1) = 1 \rightarrow a = 1$

$F(x) = \sqrt{(x-2)^2} = x-2$ $g = \sqrt{bx^2 + ax - c}$ $1 \leq x \rightarrow F(x) = \sqrt{x-2}$ $a=0, b=1$

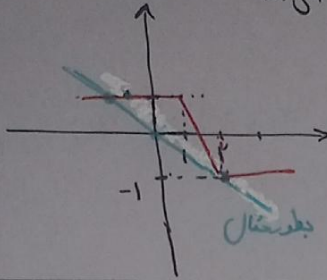
$\sqrt{x^2 - \varepsilon x + \varepsilon} \rightarrow b = -\varepsilon, c = \varepsilon$ $g(x) = \sqrt{x^2 + \varepsilon}$ $R_g = [2, +\infty)$ $c = -\varepsilon$

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$$|x-2| - |x-1| = Kx \quad \text{حساب}$$

سرسره ای

$K > 0$ معادله حساب نمی دهد



$$Kx \sim \begin{cases} 2 \\ -1 \end{cases} \quad -1 = 2K \rightarrow K = -\frac{1}{2} \quad \checkmark$$

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$$\text{الف) } y = x[n]$$

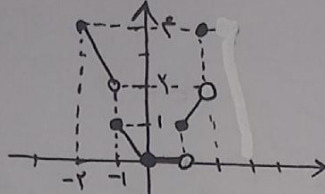
$$x < -1 \quad [n] = -2 \rightarrow -2x$$

$$-1 \leq x < 0 \quad [n] = -1 \rightarrow -x$$

$$0 \leq x < 1 \quad [n] = 0 \rightarrow 0$$

$$1 \leq x < 2 \quad [n] = 1 \rightarrow x$$

$$x = 2 \quad [n] = 2 \rightarrow 2$$



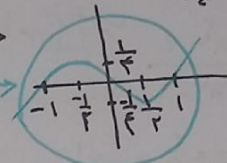
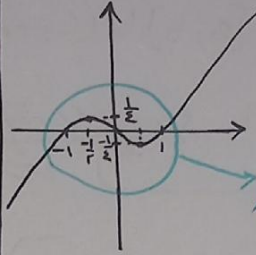
$$R_f = [0, 2] - \{0\}$$

$$\text{ب) } y = x|x| - x$$

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

$$\begin{cases} x^2 - x & x > 0 \\ -x^2 - x & x \leq 0 \end{cases}$$

$$x(x-1) < 1$$



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$$y = \frac{1}{x} + \frac{1}{x+1} + \frac{1}{x^2+x}$$

$$R_y = \mathbb{R} - \{a, b\} \quad a+b?$$

$$y = \frac{1}{x} + \frac{1}{x+1} + \left(\frac{1}{x} - \frac{1}{x+1}\right) = \frac{2}{x}$$

$$y \neq 0 \quad x = -1 \rightarrow y \neq -2$$

$$R_y = \mathbb{R} - \{0, -2\} \quad 0 + (-2) = -2 \quad \checkmark$$

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$$f(x) = \frac{x - \varepsilon\sqrt{x} + \varepsilon^2}{x - 2\sqrt{x} + 1} \quad R?$$

$$t = \sqrt{x}$$

$$x \geq 0, t \geq 0$$

$$t \neq 1$$

$$\frac{t^2 - 2t + 1}{t^2 - 2t + 1} = \frac{(t-1)(t-1)}{(t-1)^2} = \frac{t-1}{t-1}$$

حدی $\rightarrow$ $\frac{0}{0}$ صورتی
مخرج صفر شود
بسیار

$$R_y = (-\infty, 1) \cup [2, +\infty) \quad \checkmark$$

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$$f(x) = \frac{x^3 + 2x^2 - x - 2}{x^2 - 1} \quad \text{مجموع ضرایب} \quad (x-1) \text{ بر } (x^3 + 2x^2 - x - 2) \text{ بخش پذیر است}$$

$$\frac{(x-1)(x+1)(x+2)}{(x-1)(x+1)} = x+2$$

$$f(x) = x+2 \quad \begin{cases} x=1 \rightarrow 3 \\ x=-1 \rightarrow 1 \end{cases} \quad y \neq 3, 1 \quad \checkmark$$

$$R_y = \mathbb{R} - \{1, 3\}$$

$$1+2 = 3$$

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