

یازدهم دختر

بسم رب الی خلق العبدی

شایسته مراقبت زادی

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تلف

$$f(x) = \sqrt{\frac{x-1}{x} - \frac{x}{x-1}} \geq 0$$

$\xrightarrow{x \neq 0} \quad \xrightarrow{x \neq 1}$

$$\frac{x^2 - 2x + 1 - x^2}{x^2 - x} \geq 0$$

$$\frac{-2x + 1}{x(x-1)} \geq 0$$

$$x \neq 0 \quad \xrightarrow{x \neq 1}$$

$$D_f = (-\infty, 0) \cup \left[\frac{1}{2}, 1\right)$$

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

$$\frac{x+1}{x-1} - \frac{1}{x+2} \geq 0$$

$\xrightarrow{x \neq 1} \quad \xrightarrow{x \neq -2}$

$$x+5 \neq 0 \Rightarrow x \neq -5$$

$$D_f = \mathbb{R} - \left\{-2, -1, -\frac{5}{2}, 0, 1\right\}$$

$$f(x) = \sqrt{\left(\frac{1}{x} - 9\right)(32 - x^2)} \geq 0$$

$$\begin{cases} x^2 - 9x = x^2 \\ x^2 = 32 \end{cases} \Rightarrow \begin{cases} x = -2 \\ x = \frac{5}{2} \end{cases}$$

$$D_f = (-\infty, -2] \cup \left[\frac{5}{2}, +\infty\right)$$

$$b) \sqrt{x-1} + \sqrt{y+1} = 3 \Rightarrow \sqrt{y+1} = 3 - \sqrt{x-1}$$

$$3 - \sqrt{x-1} \geq 0$$

$$3 \geq \sqrt{x-1} \Rightarrow x-1 \leq 9 \Rightarrow x \leq 10 \quad D_f = I \cap II$$

$$f(x) = \log$$

$$(x-2)(x+1) > 0$$

$$\frac{-1}{+1} = \frac{2}{+1} \quad II$$

$$D_f = I \cap II = (-\infty, -1) \cup (2, +\infty)$$

مخرج جمع می شود و ۵ می شود

Senobar

یعنی -2 ، b ریشه‌ی عبارت زیر را می‌توان است

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$a + b = ?$

$Df = [-2, b]$ $\sqrt{r + ax - x^2}$

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راه اول

$-x^2 + ax + 3$ $x = -2$ $-1 - 2a + 3 = 0 \Rightarrow -1 - 2a = 0 \Rightarrow a = -1$

$-x^2 - \frac{1}{2}x + 3$ $x = \frac{1}{2} \pm \sqrt{\frac{1}{4} + 12}$ $x = \frac{1}{2} \pm \frac{5}{2}$

$x = -2$

$a + b = -\frac{1}{2} + \frac{3}{2} = 1$

$x = \frac{3}{2} \Rightarrow b = \frac{3}{2}$

راه دوم

$-2, b \rightarrow \alpha\beta = \frac{c}{a} \Rightarrow -2b = -3 \Rightarrow b = \frac{3}{2}$

$\alpha + \beta = -\frac{b}{a} \Rightarrow b - 2 = -\frac{a}{-1} \Rightarrow \frac{3}{2} - 2 = a \Rightarrow a = -\frac{1}{2}$

$a + b = -\frac{1}{2} + \frac{3}{2} = 1$

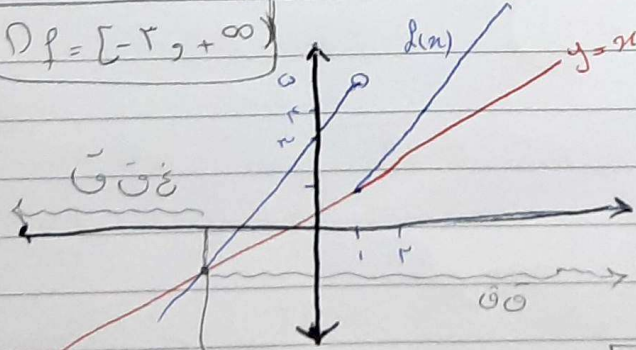
$g(x) = \sqrt{f(x) - x} \geq 0$

$f(x) = \begin{cases} 3x - 2 & x > 1 \\ 2x + 3 & x \leq 1 \end{cases}$

راه اول

$f(x) \geq x$ $3x - 2 \geq x \Rightarrow x \geq 1$ $2x + 3 \geq x \Rightarrow x \geq -3$ $-3 \leq x \leq 1$

$Df = [-2, +\infty)$



خفا را در اینجا بالاتر از آن

$Df = [-2, +\infty)$

$2x + 3 = x \Rightarrow x = -3$

در صورتی کوچکتر از 1

$f(x) = \begin{cases} (a+1)(x+2) & x > 1 \\ 3a + 2x & x \leq 1 \end{cases}$ $f(1) = f(-1) = a$

$f(0) = (a+1)(2) = 2a + 2$ $f(-1) = 3a + 2(-1) = 3a - 2$ $2a + 2 = 3a - 2 \Rightarrow a = -1$

(5)



Senobar

$$f(2-\sqrt{3}) + f(2+\sqrt{3}) = ? \quad B \quad f(x) = \sqrt{x} + \left(\frac{1}{\sqrt{x}}\right) + 2$$

$$(2-\sqrt{3})(2+\sqrt{3}) = 4-3=1 \rightarrow \text{این دو عدد معکوسند}$$

$$f(x) + f\left(\frac{1}{x}\right) = \sqrt{x} + \sqrt{\frac{1}{x}} + 2\sqrt{\frac{1}{x}} + \left(\frac{1}{\sqrt{x}}\right) + 2 = 2\sqrt{x} + 2\sqrt{\frac{1}{x}} + 4$$

$$2\left(\sqrt{x} + \sqrt{\frac{1}{x}}\right) + 4$$

$$\sqrt{x} + \sqrt{\frac{1}{x}} \xrightarrow{\text{جایگزین}} \sqrt{2-\sqrt{3}} + \sqrt{\frac{1}{2-\sqrt{3}}} = A \Rightarrow$$

$$A^2 = 2-\sqrt{3} + \frac{1}{2-\sqrt{3}} + 2\sqrt{\frac{2-\sqrt{3}}{2-\sqrt{3}}} \Rightarrow$$

$$\frac{2-\sqrt{3} + 2+\sqrt{3}}{4-3} + 2 = 2-\sqrt{3} + 2 + \sqrt{3} + 2 \Rightarrow 4 = A^2$$

$$A = \pm\sqrt{4}$$

$$\Rightarrow B = A + 4 \Rightarrow B = 4 + \sqrt{4}$$

چون جواب جمع
را بدست آمدنی می شود

$$2f(x) - 3f(1-x) = 4x^2 - x$$

$$\begin{aligned} x \rightarrow 2f(x) - 3f(1-x) &= 4x^2 - x \xrightarrow{x^2} 4f(x) - 9f(1-x) = 16x^2 - 4x \\ -x \rightarrow 2f(x) - 3f(x) &= 4x^2 + x \xrightarrow{x^2} 4f(-x) - 9f(x) = 16x^2 + 4x \end{aligned} \quad \left. \begin{array}{l} \\ \end{array} \right\} (+)$$

$$-8f(x) = 16x^2 + x \Rightarrow f(x) = -2x^2 - \frac{1}{8}x$$

$$(x+r)f(x) - rx f(x+r) = 4x^2 - mx + r_{n-1}$$

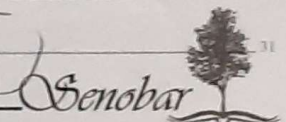
$$x=0 \rightarrow rf(0) = r_{n-1} \xrightarrow{x^2} 9f(0) = 9r_{n-1} - r \quad \left. \begin{array}{l} \\ \end{array} \right\} 9f(0) = 4f(0)$$

$$x=-r \rightarrow 4f(0) = 16 + 2r_{n-1} + r_{n-1} \rightarrow 4f(0) = 2r_{n-1} + 16 \quad \left. \begin{array}{l} \\ \end{array} \right\} 9r_{n-1} = 2r_{n-1} + 16$$

$$7r_{n-1} = 16 \Rightarrow r_{n-1} = \frac{16}{7}$$

$$2f(0) = r_{n-1} \Rightarrow 2f(0) = \frac{16}{7} - 1 \Rightarrow 2f(0) = \frac{9}{7}$$

$$\Rightarrow f(0) = \frac{9}{14}$$



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$$f(x) + f\left(\frac{1}{x}\right) = \frac{rx^2 - 12x + r}{x}$$

$$f(-1) = ?$$

(10)

$$ax + b + \frac{a}{x} + b = \frac{ax^2 + bx + a + bx}{x} = \frac{rx^2 - 12x + r}{x}$$

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$$\frac{rx^2 - 12x + r}{x} = \frac{ax^2 + bx + a}{x}$$

$$a = r$$

$$b = -12 \Rightarrow b = -4$$

$$f(x) = rx - 4 \Rightarrow f(-1) - 4 = -9$$