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..... کلاس نام و نام پاسخنامه تشریحی شماره ۱

$$A \times B \rightarrow B^2$$

$$\{(1,2), (1,3), (2,3), (2,2), (3,2), (3,3)\} - \{(2,2), (3,2), (3,3)\}$$

$$\rightarrow \{(1,2), (1,3)\}$$

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$$f(a) = \{(2, m^2), (2, 1), (-3, m), (3, m+2), (m+4)\}$$

$$\Rightarrow m^2 \cdot m + 2 \Rightarrow m^3 - m - 2 = 0 \Rightarrow m(m-1) \cdot 2 = 0 \Rightarrow m = 2, -1$$

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فقط جواب

$$g(a) = \{(3, m^2), (2, 1), (m, 4), (-2, m), (3, m)\}$$

$$\Rightarrow m^2 \cdot m + 3 \Rightarrow m^3 - m - 2 = 0 \Rightarrow m(m-1) \cdot 2 = 0 \Rightarrow m = 2, -1$$

طبیعی
میانگین

$$f(a) = \begin{cases} a^2 - 1 & ; a \leq 1 \\ a^2 + b & ; 1 < a \leq 2 \\ a^2 & ; a > 2 \end{cases} \rightarrow \begin{cases} 1 - 1 = 0 & a + b \\ a^2 + b & \end{cases}$$

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$$\begin{cases} a + b > 0 \\ a + b < 1 \end{cases} \Rightarrow \begin{cases} a < 1 \\ a < 1 - b \end{cases} \Rightarrow a < 1 - b$$

$$f(a) = \begin{cases} 2a - 3 & ; a \geq k \\ t - 3a & ; a \leq k \end{cases} \xrightarrow{a = k} \begin{cases} 2k - 3 \\ t - 3k \end{cases}$$

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$$2k - 3 \geq t - 3k \Rightarrow 5k \geq t + 3 \Rightarrow k \geq \frac{t+3}{5}$$

4

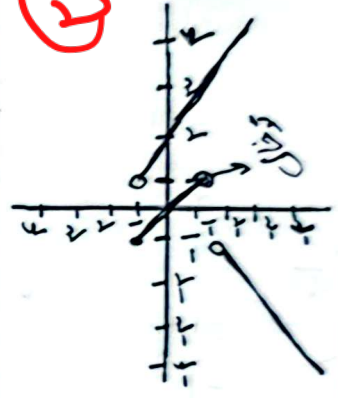
$$f(a) = \begin{cases} -a + 2 & ; a > 1 \\ -a & ; -1 \leq a \leq 1 \\ a - 1 & ; a < -1 \end{cases}$$

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$$f \rightarrow 1 - \{1\} \Rightarrow (-\infty, +\infty) - \{1\}$$

$$\rightarrow (-\infty, 1]$$

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$$\rightarrow (-\infty, 1]$$

$$x^2 + x^2 + 1 = 0 \rightarrow x^2 = -1 \rightarrow x = \pm i$$

نتیجه است $\checkmark$

ب) $x^2 + 4x^2 - 2x - 12x + 10z = (x^2 - 2x) + (4x^2 - 12x) + 10z = 0$

$$(x^2 - 2x + 1) - 1 + f(x^2 - 2x) + 10z = 0 \Rightarrow (x-1)^2 - 1 + f(x^2 - 2x + 1) - 9 + 10z = 0$$

نتیجه است $\checkmark$

الف) $x \sin y \rightarrow$ مثلاً $x = 0 \rightarrow y = 180^\circ$

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} \geq 2 \quad (A + \frac{1}{A}) \geq 2 \Rightarrow A(A + \frac{1}{A}) \geq 2$

$$\Rightarrow A^2 + 1 - 2A \geq 0 \Rightarrow (A-1)^2 \geq 0 \Rightarrow \sqrt{\frac{x}{y}} \geq 1 \Rightarrow x \geq y, x \neq 0$$

الف) $\sqrt{\frac{x-1}{x-3}} + \sqrt{\frac{x-3}{x-1}} \geq 0 \rightarrow \frac{x-1}{x-3} \geq 0 \rightarrow \frac{x-1}{x-3} \geq 0$

ب) $|x + \sqrt{y-1}| \geq \sqrt{3} \rightarrow x \geq \sqrt{3} \rightarrow x \geq \sqrt{3} \rightarrow x \geq \sqrt{3}$

دسته 8 $\{x \geq \sqrt{3}\} \Rightarrow [x, \infty)$

الف) $\sqrt{\frac{x^2 - 7x + 6}{x^2 - 10x + 19}} \rightarrow \frac{(x-6)(x-1)}{(x-1)(x-9)} \rightarrow \frac{(x-6)}{(x-9)} \geq 0 \rightarrow x \leq 1 \text{ یا } x \geq 9$

دسته $(-\infty, 1] \cup [9, \infty)$

ب) $\sqrt{\frac{x^2 - 7x + 6}{x^2 - 10x + 19}} \rightarrow \frac{(x-6)(x-1)}{(x-1)(x-9)} \rightarrow \frac{(x-6)}{(x-9)} \geq 0$

دسته $(-\infty, 1] \cup [9, \infty)$

الف) $\sqrt{\frac{x^2 - 5x + 4}{x^2 - 7x + 6}} \rightarrow \frac{(x-4)(x-1)}{(x-3)(x-2)} \rightarrow \frac{(x-4)(x-1)}{(x-3)(x-2)} \geq 0$

دسته $(-\infty, 1] \cup [4, \infty)$

ب) $\sqrt{\frac{x^2 - 5x + 4}{x^2 - 7x + 6}} \rightarrow \frac{(x-4)(x-1)}{(x-3)(x-2)} \geq 0$

دسته $(-\infty, 1] \cup [4, \infty)$