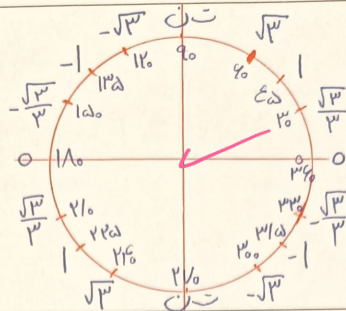


نام و نام خانوادگی بیباک زارع پاسخنامه تشریحی تکلیف شماره ۲ کلاس یازدهم ریاضی A

۲. آئین عالی ندرستی!



۱

الف) $\frac{1}{p} - 1 + 2(-1) = \frac{5}{p}$

ب) $\frac{\sqrt{3}}{p} + \frac{\sqrt{3}}{p} + \frac{3\sqrt{3}}{p} = \frac{5\sqrt{3}}{p}$

ج) $\frac{-\sqrt{3}}{3} + \sqrt{3} + \frac{2\sqrt{3}}{3} = \frac{4\sqrt{3}}{3}$

د) $\cos(0) + \sin(\frac{\pi}{4}) = 1 + \frac{1}{\sqrt{2}} = 2$

۲

$a^2 + a = 2a + a + 2 \rightarrow a^2 + a - 2 = 0 \rightarrow (a+2)(a-1) \rightarrow a = -2, 1 \rightarrow a > 0 \rightarrow a = 1$

$$\left. \begin{array}{l} f(1) = 1^2 + f(1) = 5 \\ 2(1) + 1 + 2 = 5 \end{array} \right\} f(1) = 5$$

۳

$x=3 \rightarrow |-3+1| = 2 \geq 2 \sqrt{x-3} \rightarrow 11-b$

$x=3 \rightarrow a-4$

$a-4 = 11-b \rightarrow a+b = 15$

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الف) $x^3 - 4x^2 \neq 0 \rightarrow x^2(x-4) \neq 0 \rightarrow x \neq 0, 4$
 $D_f = \mathbb{R} - \{0, 4\}$

ب) $2x^3 + 4x^2 + 2x + 2 \rightarrow 2(x^3 + 2x^2 + x + 1) \rightarrow 2(x+1)(x^2+1) \neq 0$
 $D_f = \mathbb{R} - \{-1\}$
 (همیشه ۱ و ۰ منفی نیستند)

۵

$$\text{الف) } \sqrt{x^3-1} + \sqrt{x-2} \rightarrow x^3-1 \geq 0 \rightarrow (x-1)(x+1) \geq 0 \rightarrow \left. \begin{matrix} x \geq 1 \\ x \leq -1 \end{matrix} \right\} I$$

$$x-2 \geq 0 \rightarrow x \geq 2 \} II \rightarrow I \cap II \Rightarrow D_f = [2, +\infty)$$

$$\text{ب) } \sqrt{\frac{9-3x}{9x-3}} \rightarrow \frac{9-3x}{9x-3} \geq 0 \rightarrow x \leq 2$$

$$9x-3 > 0 \rightarrow 9x > 3 \rightarrow x > \frac{1}{3}$$

$$\xrightarrow{\text{استنتاج}} D = \left(\frac{1}{3}, 2 \right]$$

$$y = \sqrt{4x-a} + \sqrt{b-3x} \rightarrow D = \{2\}$$

$$\left. \begin{matrix} 4x-a \geq 0 \rightarrow x \geq \frac{a}{4} \\ b-3x \geq 0 \rightarrow x \leq \frac{b}{3} \end{matrix} \right\} D = \left[\frac{a}{4}, \frac{b}{3} \right] = \{2\}$$

$$\left. \begin{matrix} \frac{a}{4} = \frac{b}{3} = 2 \rightarrow a = 8 \\ b = 6 \end{matrix} \right\} \frac{b}{a} = \frac{6}{8} = \frac{3}{4} = \frac{1}{\frac{4}{3}}$$

$$\text{الف) } y = \sqrt{\frac{x^3-x-4}{x^5-11x^3+34x}} = \sqrt{\frac{(x-3)(x+2)}{(x-9)(x-4)}} \Rightarrow \frac{(x-3)(x+2)}{(x-9)(x-4)} > 0 \rightarrow \frac{-3 \quad -2 \quad 9 \quad 4}{+ \quad - \quad - \quad +} \\ x^3 = t \leftarrow D = (-\infty, -3) \cup (2, 9) \cup (4, +\infty)$$

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

$$D = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$$

$$\text{الف) } \sqrt{2[x]-4} \rightarrow 2[x]-4 \geq 0 \rightarrow 2[x] \geq 4 \rightarrow [x] \geq 2 \rightarrow x \geq 2 \rightarrow D = [2, +\infty)$$

$$\text{ب) } \sqrt{2[x]-5} \rightarrow 2[x]-5 \geq 0 \rightarrow [x] \geq \frac{5}{2} \rightarrow [x] \geq 3 \rightarrow x \geq 3 \rightarrow D = [3, +\infty)$$

$$\text{الف) } \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{9-x}{x^2+2x+4}} \rightarrow \frac{x+1}{|x-3|} \geq 0 \rightarrow x > -1 \quad \frac{9-x}{x^2+2x+4} \geq 0 \rightarrow 9-x \geq 0 \rightarrow x \leq 9 \quad II$$

$$I \cap II \Rightarrow D = [-1, 3) \cup (3, 9]$$

$$\text{ب) } \sqrt{[x]-4} + \sqrt{2-[x]} \rightarrow [x]-4 \geq 0 \rightarrow [x] \geq 4 \rightarrow x \geq 4 \quad I \quad 2-[x] \geq 0 \rightarrow [x] \leq 2 \rightarrow x < 3 \quad II$$

$$I \cap II \rightarrow D = \emptyset \quad \text{استنتاج ندارند.}$$