

۱۹, ۲۵

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۲ کلاس B

$$y^2 + 4y + k + 2x^2 - 4x = 0 \Rightarrow (x+\beta)^2 + (y+\alpha)^2 = 0 \Rightarrow \beta = -1, \alpha = -2 \Rightarrow k = \alpha^2 + \beta^2 = 1 + 4 = 5$$

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$$x^2 + x; x \geq a \Rightarrow a^2 + a \leq (a+1)^2 \Rightarrow a^2 + a - 1 \leq 0 \Rightarrow (a+2)(a-1) \leq 0$$

$$x^2 + x; x \leq a \Rightarrow a^2 + a \geq (a+1)^2 \Rightarrow a^2 + a - 1 \geq 0 \Rightarrow (a+2)(a-1) \geq 0$$

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$$x^2 + x; x \geq 1 \Rightarrow f(1) = 2$$

$$x^2 + x; x \leq 1$$

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$$\begin{cases} 2n^2 - b; |n+1| \geq 1 \\ a + 2n; -1 \leq n \leq 1 \end{cases} \Rightarrow \begin{cases} n+1 \geq 1 \\ n+1 \leq -1 \end{cases} \Rightarrow n \geq -2$$

$$1n - b = a - 9 \Rightarrow a + b \leq 28$$

$$n \rightarrow -2 \rightarrow a + 2n, 2n^2 - b$$

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$$\sqrt{4n-a} \leq 0 \Rightarrow \sqrt{4-a} \leq 0 \Rightarrow a \leq 4$$

$$\sqrt{b-4n} \leq 0 \Rightarrow \sqrt{b-4} \leq 0 \Rightarrow b \leq 4$$

$$\frac{4}{4} = \frac{1}{1}$$

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$$y \leq \sqrt{\frac{n+1}{|n-1|}} + \sqrt{\frac{4-n}{n^2+2n+2}}$$

$$(I) \sqrt{[n]-\epsilon} \geq 0 \Rightarrow [n]-\epsilon \geq 0 \Rightarrow [n] \geq \epsilon \Rightarrow n \geq \epsilon$$

$$(II) \rightarrow 2-[n] \geq 0 \Rightarrow 2 \geq [n] \Rightarrow n \leq 2$$

$$I \cap II = \{1, 2\}$$

$$\Rightarrow I \cap II = \mathbb{Q} = \mathbb{P} \neq \emptyset$$

$$I = [1, 2) \cup (2, +\infty) \quad II = (-\infty, 2]$$

$$D_f \Rightarrow I \cap II = [-1, 2] - \{2\}$$

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الف) $y = \sqrt{x^2 - n - 4} \geq 0 \Rightarrow \frac{(n-4)(n+2)}{(n-4)^2 - n^2} \Rightarrow \frac{(n-4)(n+2)}{(n-4)^2 - n^2}$ $D_f = (-\infty, -2) \cup (2, 4) \cup (4, +\infty)$ ✓ ب) $I \Rightarrow x^2 - 2n^2 - 5n + 4 = (n-1)(n^2 - n - 4) \Rightarrow (n-1)(n^2 - 4)(n+2)$ $II \Rightarrow x^2 - 2n^2 - 5n - 6 = (n-2)(n^2 + 4n + 3) = (n-2)(n+1)(n+3)$ $D_f = (-\infty, -2) \cup (-2, -1) \cup (1, 2) \cup (2, +\infty)$ ✓ در صورت بالا به دلیل تقسیم و بعضی ساده کردن ما را منتهی به این معادله می رسد (همه یکی از درجه ها را ششانی نوشتیم تا معادله (مفید) شود)	2 6
الف) $[-x] - 2 \geq 0 \Rightarrow [x] \geq 2 \Rightarrow D_f = (-\infty, -2]$ ✓ ب) $[x]^2 - 2[x] - 4 \neq 0 \Rightarrow ([x] - 3)([x] + 1) \neq 0 \Rightarrow D_f = (-\infty, -1) \cup [2, +\infty)$ ✓ $(2, 4)$ $(-1, -2)$	2 7
الف) $y = \frac{\cot x}{\tan x} = \frac{\cos}{\sin} \Rightarrow \sin \neq 0$ $\frac{\sin}{\cos} \Rightarrow \cos \neq 0$ $\tan \neq -1$ ب) $1 - \varepsilon \sin^2 x \geq 0 \Rightarrow 1 \geq \varepsilon \sin^2 x \Rightarrow \frac{1}{\varepsilon} \geq \sin^2 x \Rightarrow \frac{1}{\varepsilon} \geq \sin x \Rightarrow -\frac{1}{\varepsilon} \leq \sin x \leq \frac{1}{\varepsilon}$ $D_f = \left[2k\pi - \frac{\pi}{\varepsilon}, 2k\pi + \frac{\pi}{\varepsilon}\right] \cup \left[2k\pi + \frac{3\pi}{\varepsilon}, 2k\pi + \frac{5\pi}{\varepsilon}\right]$ ✓	$K\pi - \frac{\pi}{\varepsilon}$ 1 1, 1.5
الف) $1 - \log \frac{1}{x} \geq 0 \Rightarrow 1 \geq \log \frac{1}{x} \Rightarrow \frac{1}{x} \leq e \Rightarrow D_f = \left[\frac{1}{e}, +\infty\right)$ ✓ ب) $I \Rightarrow \sqrt{n^2 - n} \geq 0 \Rightarrow n^2 - n \geq 0 \Rightarrow n(n-1) \geq 0$ $II \Rightarrow \log \frac{n^2 - 4n + 3}{n^2 - 4n} \geq 0 \Rightarrow \log \frac{n-1}{n} \geq 0 \Rightarrow \frac{n-1}{n} \geq 1 \Rightarrow n-1 \geq n \Rightarrow -1 \geq 0$ (مناقض) $III \Rightarrow (-\infty, 0] \cup [1, +\infty)$ $IV \Rightarrow \mathbb{R} - \{4, -1\}$ $I \cap II = D_f = (-\infty, 0) - \{-1\} \cup (3, +\infty) - \{4\}$	1, 5
الف) $y = \sqrt{2+n-n^2} \geq 0 \Rightarrow 2+n-n^2 \geq 0 \Rightarrow n^2 - n - 2 \leq 0 \Rightarrow (n-2)(n+1) \leq 0$ $D_f = [-1, 2]$ ✓ ب) $\frac{3n+8}{2n+4} \in \mathbb{W} \Rightarrow 3n+8 = 2n+4k \Rightarrow n = 4k-4 \Rightarrow n = 4(k-1)$ $\{n n = \frac{4k+8}{2}, k \in \mathbb{W}\}$ ✓	2 10