

۱۹, ۷۵

نام و نام خانوادگی سرور اخوان پاسخنامه تشریحی تکلیف شماره ۴ کلاس پنجم B

الف) $2-x \geq 0 \Rightarrow 2 \geq x \Rightarrow D_f = 2 \geq x \geq -14 \subseteq [-14, 2]$ ✓
 $4-\sqrt{2-x} \geq 0 \Rightarrow 4 \geq \sqrt{2-x} \Rightarrow x \geq -14$

ب) $x-2 \geq 0 \Rightarrow x \geq 2$ $\rightarrow D_f = 2 \leq x \leq 11$ ✓
 $3-\sqrt{x-2} \geq 0 \Rightarrow 3 \geq \sqrt{x-2} \Rightarrow 11 \geq x$ ✓
 $[2, 11]$ ✓

الف) $4-x^2 \geq 0 \Rightarrow 4 \geq x^2 \Rightarrow 2 \geq x \geq -2 \Rightarrow x \leq \sqrt{2}, x \geq -\sqrt{2}$ ✓
 $\Rightarrow D_f = -\sqrt{2} \leq x \leq \sqrt{2} \subseteq [-\sqrt{2}, \sqrt{2}]$ ✓

ب) $3|x|-9 \geq 0 \Rightarrow 3|x| \geq 9 \Rightarrow |x| \geq 3 \Rightarrow x \geq 3, x \leq -3$ ✓
 $\Rightarrow D_f = [3, +\infty) \cup (-\infty, -3]$ $\rightarrow (-\infty, -3] \cup [3, +\infty)$ ✓

الف) $|x|-3 \neq 0 \Rightarrow |x| \neq 3 \Rightarrow x \neq 3, -3$

$\Rightarrow D_f = \mathbb{R} - \{3, -3\}$ ✓

ب) $x \geq 0$ $x \geq 0 \cap \mathbb{R} - \{9\} \Rightarrow D_f = [0, +\infty) - \{9\}$ ✓
 $\sqrt{x}-3 \neq 0 \Rightarrow \sqrt{x} \neq 3 \Rightarrow x \neq 9$ ✓

الف) $3-|x| \geq 0 \Rightarrow 3 \geq |x| \Rightarrow 3 \geq x \geq -3$ (خرج همیشه مثبت است) ✓
 $\Rightarrow D_f = [-3, 3]$ ✓

ب) $4-x^2 \geq 0 \Rightarrow 4 \geq x^2 \Rightarrow 2 \geq x \geq -2$ ✓
 $|x|-1 \neq 0 \Rightarrow |x| \neq 1 \Rightarrow x \neq 1, -1$ ✓
 $\Rightarrow D_f = [-2, 2] - \{-1, 1\}$ ✓

الف) $x+|x| > 0 \Rightarrow x > -|x|$ $\Rightarrow D_f = \mathbb{R}^+ \subseteq (0, +\infty)$ ✓
 همیشه مثبتی

ب) $x|x| > 0 \Rightarrow x > 0$ $\Rightarrow D_f = \mathbb{R}^+ \subseteq (0, +\infty)$ ✓
 همیشه مثبتی یا منفی

الف) $x - [x] \geq 0 \Rightarrow x \geq [x] \Rightarrow x \geq n \Rightarrow D_f = (-\infty, x)$ ✓

ب) $x - [x] > 0 \Rightarrow x > [x] \Rightarrow x < x \Rightarrow D_f = (-\infty, x)$ ✓

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الف) $x[x] \neq 0 \Rightarrow x \neq 0 \wedge x \in [0, 1) \Rightarrow D_f = \underbrace{(-\infty, +\infty)}_{\mathbb{R}} - [0, 1)$ ✓

ب) $-x[x] > 0$
 قسمة ٠ لا معنى لها $\Rightarrow D_f = \emptyset$ ✓

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الف) $[x - \frac{1}{x}] + [x + \frac{x}{x}] \geq 0 \Rightarrow [x - \frac{1}{x} + 1] + [x + \frac{x}{x}] \geq 1$

$\Rightarrow 2[x + \frac{x}{x}] \geq 1 \Rightarrow [x + \frac{x}{x}] \geq \frac{1}{2} \Rightarrow x \geq \frac{1}{x} \Rightarrow D_f = [\frac{1}{x}, +\infty)$ ✓

ب) $[x - \frac{1}{x}] + [-x + \frac{1}{x}] \geq 0 \Rightarrow [x - \frac{1}{x}] + [-(x - \frac{1}{x})] \geq 0$

$x - \frac{1}{x} = a \xrightarrow{\text{أر}} \begin{cases} a \notin \mathbb{Z} & [a] + [-a] = -1 \\ a \in \mathbb{Z} & [a] + [-a] = 0 \end{cases} \Rightarrow x - \frac{1}{x} \in \mathbb{Z} \Rightarrow D_f = \{x \mid x = k + \frac{1}{k}, k \in \mathbb{Z}\}$ ✓

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الف) $x \sin^2 x - 1 \neq 0 \Rightarrow x \sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{x} \Rightarrow \sin x \neq \pm \frac{\sqrt{x}}{x}$

$\Rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{x} + \frac{\pi}{x} \right\}$ ✓

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ب) $\frac{\cot x + 1}{\tan x + 1} = \frac{\cos}{\sin} + 1 \rightarrow \sin \neq 0, \tan x \neq -1$
 $\frac{\sin}{\cos} + 1 \mid \cos \neq 0$
 مخرج تعريف منته $\Rightarrow D_f = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4}, \frac{k\pi}{2} \right\}$ ✓

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الف) $x \sin x - 1 \geq 0 \Rightarrow x \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{x}$

$\Rightarrow D_f = \left[2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4} \right]$ ✓

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ب) $1 - x \cos x \geq 0 \Rightarrow 1 \geq x \cos x \Rightarrow \frac{1}{x} \geq \cos x$

$\Rightarrow D_f = \left[2k\pi + \frac{\pi}{x}, 2k\pi - \frac{\pi}{x} \right]$

$2k\pi + \frac{2\pi}{x}$

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