

۱۸/۵

نام و نام خانوادگی: تاریخ: پاسخنامه تشریحی تکلیف شماره ۴ کلاس: (همایون)

الف) $y = \sqrt{4 - \sqrt{2-x}}$ $\rightarrow 4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16 \rightarrow -14 \leq x$
 $\rightarrow 2-x \geq 0 \rightarrow 2 \geq x$ $Df = [-14, 2]$ (۵)

ب) $y = \sqrt{3 - \sqrt{x-2}}$ $\rightarrow x-2 \geq 0 \rightarrow x \geq 2$ $Df = [2, 11]$
 $\rightarrow 3 - \sqrt{x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2 \rightarrow 11 \geq x$

الف) $y = \sqrt{4 - 2x^2}$ $\rightarrow 4 - 2x^2 \geq 0 \rightarrow 2(2 - x^2) \geq 0$ $\frac{-\sqrt{2} \quad +\sqrt{2}}{f(x) \mid - \quad + \quad -}$
 $Df = [-\sqrt{2}, +\sqrt{2}]$ (۵)

ب) $y = \sqrt{3|x|-9}$ $\rightarrow 3|x|-9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3$
 $x \geq 3 \Rightarrow Df = (-\infty, -3] \cup [3, +\infty)$
 $x \leq -3$

الف) $y = \sqrt{\frac{|x|+1}{|x|-3}}$ $\rightarrow |x|-3 \neq 0 \rightarrow |x| \neq 3 \rightarrow x \neq \pm 3$ $Df = R - \{\pm 3\}$

ب) $y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $\rightarrow \sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9$ $Df = [0, +\infty) - \{9\}$
 $\rightarrow x \geq 0$ (۵)

الف) $y = \frac{\sqrt{3-|x|}}{|x|+2}$ $\rightarrow \sqrt{3-|x|} \geq 0 \rightarrow 3-|x| \geq 0 \rightarrow |x| \leq 3$ $Df = [-3, 3]$
 $\rightarrow |x|+2 \neq 0 \rightarrow |x| \neq -2$ $-3 \leq x \leq 3$ (۵)

ب) $y = \frac{\sqrt{4-x^2}}{|x|-1}$ $\rightarrow 4-x^2 \geq 0 \rightarrow 2 \geq x^2 \rightarrow 2 \geq x \geq -2$ $Df = [-2, 2] - \{\pm 1\}$
 $\rightarrow |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1$

الف) $y = \frac{x+1}{\sqrt{x+|x|}}$ $\rightarrow x+|x| > 0 \rightarrow |x| > -x \rightarrow Df = R^+$ (۵)

ب) $y = \frac{1}{\sqrt{x|x|}}$ $\rightarrow x|x| > 0$
 $\oplus \checkmark$
 $\ominus \times$
 $\odot \times$
 $Df = R^+$

الف) $y = \sqrt{2 - [x]} \rightarrow 2 - [x] \geq 0 \rightarrow 2 \geq [x] \Rightarrow Df = (-\infty, 3)$

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ب) $y = \frac{1}{\sqrt{2 - [x]}} \rightarrow 2 - [x] > 0 \rightarrow 2 > [x] \Rightarrow Df = (-\infty, 2)$

الف) $y = \frac{1}{x[x]}$ $\rightarrow x[x] \neq 0 \Rightarrow Df = \mathbb{R} - [0, 1)$

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ب) $y = \frac{1}{\sqrt{-x[x]}}$ $\rightarrow -x[x] > 0 \Rightarrow Df = \emptyset$

$\oplus x$
 $\otimes x$
 $\ominus x$

الف) $y = \sqrt{\left[x - \frac{1}{3}\right] + \left[x + \frac{1}{3}\right]} \rightarrow y = \sqrt{\left[x - \frac{1}{3}\right] + \left[x + 1 - \frac{1}{3}\right]} \rightarrow y = \sqrt{2\left[x - \frac{1}{3}\right] + 1}$

$2\left[x - \frac{1}{3}\right] + 1 \geq 0 \rightarrow 2\left[x - \frac{1}{3}\right] \geq -1 \rightarrow \left[x - \frac{1}{3}\right] \geq -\frac{1}{2} \rightarrow \left[x - \frac{1}{3}\right] \geq -\frac{1}{2}$ که منفی نباشد

پس فاصله‌هایی جواب نزدیک می‌شود

ب) $y = \sqrt{\left[x - \frac{1}{3}\right] + \left[-x + \frac{1}{3}\right]} \rightarrow \left[x - \frac{1}{3}\right] + \left[-x + \frac{1}{3}\right] \geq 0 \rightarrow \left[x - \frac{1}{3}\right] + \left[-\left(x - \frac{1}{3}\right)\right] \geq 0 \Rightarrow Df = \left[\frac{1}{3}, +\infty\right)$

$x - \frac{1}{3} \in \mathbb{Z} \quad Df = \{x \mid x = k + \frac{1}{3}, k \in \mathbb{Z}\}$

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

$Df = \mathbb{R} - \left\{k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}\right\}$

0, 1, 2

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ب) $y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \left. \begin{array}{l} \sin x \neq 0 \\ x \neq k\pi \\ \tan x \neq -1 \\ x \neq k\pi - \frac{\pi}{4} \end{array} \right\} \Rightarrow Df = \mathbb{R} - \left\{\frac{k\pi}{2}, k\pi - \frac{\pi}{4}\right\}$

0, 1, 2

الف) $y = \sqrt{2 \sin x - 1} \rightarrow 2 \sin x - 1 \geq 0 \quad \sin x \geq \frac{1}{2} \quad Df = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\right]$

1, 2

ب) $y = \sqrt{1 - 2 \cos x} \rightarrow 1 - 2 \cos x \geq 0 \quad 1 \geq 2 \cos x$

$\frac{1}{2} \geq \cos x$

$Df = \left[2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\right]$