

نام و نام خانوادگی آ. س. م. ه. ج. س. پاسخنامه تشریحی تکلیف شماره ۴ ... کلاس ۷ - پنجشنبه

(الف) $y = \sqrt{4 - \sqrt{2-x}}$ $2-x \geq 0 \rightarrow x \leq 2 \rightarrow x \leq 2$ $4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16$ $x \geq -14$ $D_f = [-14, 2]$	(ب) $y = \sqrt{3 - \sqrt{x-2}}$ $x-2 \geq 0 \rightarrow x \geq 2$ $3 - \sqrt{x-2} \geq 0 \rightarrow \sqrt{x-2} \leq 3 \rightarrow x-2 \leq 9$ $x \leq 11$ $D_f = [2, 11]$	۱
(الف) $y = \sqrt{4 - 2x^2}$ $4 - 2x^2 \geq 0 \rightarrow 2x^2 \leq 4 \rightarrow x^2 \leq 2$ $-\sqrt{2} \leq x \leq \sqrt{2}$ $D_f = [-\sqrt{2}, \sqrt{2}]$	(ب) $y = \sqrt{3 x -9}$ $3 x -9 \geq 0 \rightarrow 3 x \geq 9 \rightarrow x \geq 3$ $D_f = (-\infty, -3] \cup [3, +\infty)$	۲
(الف) $y = \sqrt[3]{\frac{ x +1}{ x -3}}$ $ x -3 \neq 0 \rightarrow x \neq 3 \rightarrow \begin{cases} x \neq 3 \\ x \neq -3 \end{cases}$ $D_f = \mathbb{R} - \{-3, 3\}$	(ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $\sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow \begin{cases} x \neq 9 \\ x \neq -9 \end{cases}$ $D_f = \mathbb{R} - \{-9, 9\}$	۳
(الف) $y = \frac{\sqrt{3- x }}{ x +2}$ $3- x \geq 0 \rightarrow x \leq 3 \rightarrow \begin{cases} x \leq 3 \\ x \geq -3 \end{cases}$ $D_f = [-3, 3]$	(ب) $y = \frac{\sqrt{4-x^2}}{ x -1}$ $4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$ $ x -1 \neq 0 \rightarrow x \neq 1 \rightarrow \begin{cases} x \neq 1 \\ x \neq -1 \end{cases}$ $D_f = [-2, 2] - \{-1, 1\}$	۴
(الف) $y = \frac{x+1}{\sqrt{x+ x }}$ $x+ x \geq 0 \rightarrow x+x \geq 0 \rightarrow 2x \geq 0 \rightarrow x \geq 0$ $\sqrt{x+ x } \neq 0 \rightarrow x+ x \neq 0$ $D_f = (0, +\infty)$	(ب) $y = \frac{1}{\sqrt{x x }}$ $x x \geq 0 \rightarrow \begin{cases} x > 0 \rightarrow x \cdot x > 0 \rightarrow x^2 > 0 \\ x < 0 \rightarrow -x \cdot x < 0 \rightarrow -x^2 < 0 \end{cases}$ $\Rightarrow x > 0$ $D_f = (0, +\infty)$	۵

$y = \sqrt{r - [x]}$ $r - [x] \geq 0 \rightarrow [x] \leq r$ $D_f = (-\infty, r)$	(ف)	$\frac{1}{\sqrt{r - [x]}}$ $r - [x] > 0 \rightarrow [x] < r$ $D_f = (-\infty, r)$	(ف)	6
$y = \frac{1}{x[x]}$ $x[x] \neq 0 \rightarrow \begin{cases} x \neq 0 \\ [x] \neq 0 \end{cases}$ $0 \leq x < 1$ $D_f = \mathbb{R} - [0, 1)$	(ف)	$y = \frac{1}{\sqrt{-x[x]}}$ $-x[x] > 0 \rightarrow x[x] < 0$ $\begin{matrix} \oplus & x \\ \otimes & x \\ \ominus & x \end{matrix}$ $D_f = \emptyset$	(ف)	7
$y = \sqrt{[x - \frac{1}{r}] + [x + \frac{r}{r}]}$ $[x - \frac{1}{r}] + [x + \frac{r}{r}] \geq 0 \rightarrow [x + \frac{r}{r}] - 1 + [x + \frac{r}{r}] \geq 0$ $\rightarrow 2[x + \frac{r}{r}] \geq 1 \rightarrow [x + \frac{r}{r}] \geq \frac{1}{2} \rightarrow x + \frac{r}{r} \geq \frac{1}{2}$ $x \geq \frac{1}{r}$ $D_f = [\frac{1}{r}, +\infty)$	(ف)	$\sqrt{[x - \frac{1}{r}] + [-x + \frac{1}{r}]}$ $[x - \frac{1}{r}] + [-x + \frac{1}{r}] \geq 0 \rightarrow [x - \frac{1}{r}] + [-(x - \frac{1}{r})] \geq 0$ $\xrightarrow{\text{if}} \begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \end{cases} \rightarrow x - \frac{1}{r} \in \mathbb{Z}$ $D_f = \{x \mid x = k + \frac{1}{r}, k \in \mathbb{Z}\}$	(ف)	8
$y = \frac{1}{r \sin^2 x - 1}$ $r \sin^2 x - 1 \neq 0 \rightarrow r \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{r}$ $\sin x \neq \pm \frac{1}{\sqrt{r}} \rightarrow \sin x \neq \pm \frac{\sqrt{r}}{r}$ $D_f = \mathbb{R} - \{rk\pi \pm \frac{\pi}{r}, rk\pi \pm \frac{3\pi}{r}\}$	(ف)	$y = \frac{\cot x + 1}{\tan x + 1}$ $\tan x + 1 \neq 0 \rightarrow \tan x \neq -1$ $x =$ $D_f = \mathbb{R} - \{k\pi - \frac{\pi}{4}\}$	(ف)	9
$y = \sqrt{r \sin x - 1}$ $r \sin x - 1 \geq 0 \rightarrow r \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{r}$ $D_f = [rk\pi + \frac{\pi}{r}, rk\pi + \frac{3\pi}{r}]$	(ف)	$y = \sqrt{1 - r \cos x}$ $1 - r \cos x \geq 0 \rightarrow r \cos x \leq 1 \rightarrow \cos x \leq \frac{1}{r}$ $D_f = [rk\pi + \frac{\pi}{r}, rk\pi + \frac{3\pi}{r}]$	(ف)	10