

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۴ کلاس دهم ویدئو

$$\text{الف) } y = \sqrt{4-x} \rightarrow \begin{cases} 4-x \geq 0 \rightarrow x \leq 4 \\ 4-\sqrt{4-x} \geq 0 \rightarrow 4 \geq \sqrt{4-x} \rightarrow 16 \geq 4-x \rightarrow -14 \geq -x \rightarrow -14 \leq x \end{cases} \Rightarrow D_f = [-14, 4]$$

$$\text{ب) } y = \sqrt{3-\sqrt{x-2}} \rightarrow \begin{cases} x-2 \geq 0 \rightarrow x \geq 2 \\ 3-\sqrt{x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2 \rightarrow 11 \geq x \end{cases} \Rightarrow D_f = [2, 11]$$

$$\text{الف) } y = \sqrt{4-2x^2} \rightarrow 4-2x^2 \geq 0 \rightarrow 4 \geq 2x^2 \rightarrow 2 \geq x^2 \rightarrow \sqrt{2} \geq x \geq -\sqrt{2} \Rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$$

$$\text{ب) } y = \sqrt{2|x|-1} \rightarrow 2|x|-1 \geq 0 \rightarrow 2|x| \geq 1 \rightarrow |x| \geq \frac{1}{2} \rightarrow \begin{cases} x \geq \frac{1}{2} \\ x \leq -\frac{1}{2} \end{cases} \Rightarrow D_f = (-\infty, -\frac{1}{2}] \cup [\frac{1}{2}, +\infty)$$

$$\text{الف) } y = \sqrt[3]{\frac{|x|+1}{|x|-2}} \rightarrow |x|-2 \neq 0 \rightarrow |x| \neq 2 \rightarrow \begin{matrix} x \neq 2 \\ x \neq -2 \end{matrix} \Rightarrow D_f = \mathbb{R} - \{\pm 2\}$$

$$\text{ب) } y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \rightarrow \begin{cases} x \geq 0 \\ \sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9 \end{cases} \Rightarrow D_f = [0, 9) \cup (9, +\infty)$$

$$\text{الف) } y = \frac{\sqrt{3-|x|}}{|x|+2} \rightarrow 3-|x| \geq 0 \rightarrow 3 \geq |x| \rightarrow -3 \leq x \leq 3 \rightarrow D_f = [-3, 3]$$

جمع صورتها و مخرجها را به اشتباه میزنند.
تفاوت علامت اشتباه است.

$$\text{ب) } y = \frac{\sqrt{4-x^2}}{|x|-1} \rightarrow \begin{cases} 4-x^2 \geq 0 \rightarrow 4 \geq x^2 \rightarrow 2 \geq x \geq -2 \\ |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow \begin{matrix} x \neq 1 \\ x \neq -1 \end{matrix} \end{cases} \Rightarrow D_f = [-2, 2] - \{-1, 1\}$$

$$\text{الف) } y = \frac{x+1}{\sqrt{x+|x|}} \rightarrow x+|x| > 0 \rightarrow |x| > -x \rightarrow \begin{matrix} \oplus 1+1 > 0 \checkmark \\ \ominus -1+1 > 0 \times \\ \odot 0+0 > 0 \times \end{matrix} \Rightarrow D_f = \mathbb{R}^+$$

$$\text{ب) } y = \frac{1}{\sqrt{x|x|}} \rightarrow x|x| > 0 \rightarrow \begin{matrix} \oplus 2x|x| > 0 \checkmark \\ \ominus -1x|1| > 0 \times \\ \odot 0x|0| > 0 \times \end{matrix} \Rightarrow D_f = \mathbb{R}^+$$

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

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

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

ب) $y = \frac{1}{\sqrt{-x[x]}}$ $\rightarrow -x[x] > 0 \rightarrow \begin{matrix} \ominus \times \\ \oplus \times \\ \odot \times \end{matrix} \rightarrow D_f = \emptyset$

الف) $y = \sqrt{[x - \frac{1}{x}] + [x + \frac{1}{x}]} \rightarrow [x - \frac{1}{x}] + [x + \frac{1}{x}] + 1 \geq 0 \rightarrow 2[x - \frac{1}{x}] \geq -1 \rightarrow [x - \frac{1}{x}] \geq -\frac{1}{2} \star$
 $\star \rightarrow x - \frac{1}{x} \geq 0 \rightarrow x \geq \frac{1}{x} \rightarrow D_f = [\frac{1}{x}, +\infty)$

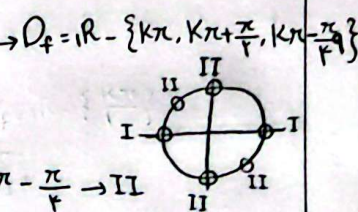
ب) $y = \sqrt{[x - \frac{1}{x}] + [-x + \frac{1}{x}]} \rightarrow [x - \frac{1}{x}] + [-x + \frac{1}{x}] \geq 0$
 $\Rightarrow D_f = \{x | x = k + \frac{1}{x}, k \in \mathbb{Z}\}$
 $\begin{cases} a \in \mathbb{Z} \rightarrow [a] + [-a] = 0 \\ a \notin \mathbb{Z} \rightarrow [a] + [-a] = -1 \end{cases} \Rightarrow x - \frac{1}{x} \in \mathbb{Z}$

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

$\star \rightarrow \begin{cases} \sin 45^\circ = \frac{1}{\sqrt{2}} \\ \sin 135^\circ = \frac{1}{\sqrt{2}} \end{cases} \Rightarrow \begin{cases} \sin 45^\circ = \frac{1}{\sqrt{r}} \\ \sin 135^\circ = \frac{1}{\sqrt{r}} \end{cases} \Rightarrow D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$

ب) $y = \frac{\cot x + 1}{\tan x + 1}$

$\begin{cases} \cot x \neq \frac{-1}{1} \rightarrow \sin \neq 0 \rightarrow k\pi \rightarrow \text{I} \\ \tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow \cos \neq 0 \rightarrow k\pi + \frac{\pi}{2} \vee k\pi - \frac{\pi}{2} \rightarrow \text{II} \end{cases}$



الف) $y = \sqrt{r \sin x - 1} \rightarrow r \sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{r}$
 $\begin{cases} \sin 15^\circ = \frac{1}{2} \\ \sin 75^\circ = \frac{1}{2} \end{cases} \Rightarrow D_f = [k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}]$



ب) $y = \sqrt{1 - r \cos x} \rightarrow 1 - r \cos x \geq 0 \rightarrow 1 \geq r \cos x \rightarrow \frac{1}{r} \geq \cos x$
 $\begin{cases} \cos 60^\circ = \frac{1}{2} \\ \cos 300^\circ = \frac{1}{2} \end{cases} \Rightarrow D_f = [k\pi - \frac{\pi}{3}, k\pi + \frac{\pi}{3}]$

