

نام و نام خانوادگی نیمی غفری پاسخنامه تشریحی تکلیف شماره ۳ کلاس یازدهم ریاضی ۳

۱۹,۵ افزاین خوب نوشتی

الف) $\frac{x+3}{2x^3+12x^2-18x+3} = \frac{(x+3)(x-1)}{(x-1)(2x-1)(x+3)} \rightarrow (x-1)(2x-1)(x+3) \neq 0$
 $D_f: \mathbb{R} - \{1, \frac{1}{2}, -3\}$ $x \neq 1, \frac{1}{2}, -3$

ب) $\frac{x+3}{2x^3+9x^2+10x+3} \cdot (x+1) \rightarrow \frac{x+3}{(x+1)(2x+1)(x+3)}$
 $(x+3)(x+1)(2x+1) \neq 0 \rightarrow x \neq -3, -\frac{1}{2}, -1$
 $D_f: \mathbb{R} - \{-3, -\frac{1}{2}, -1\}$

الف) $\frac{x+3}{(x-1)(x^2-x-1)} \rightarrow (x-1)(x^2-x-1) \neq 0$
 $x \neq 1$ $D_f: \mathbb{R} - \{1\}$

ب) $\sqrt{\frac{x+3}{x^3-2x^2+x-1}} \geq 0 \rightarrow \frac{x+3}{(x-1)(x^2-x-1)} \geq 0$
 $D_f: (-\infty, -1] \cup (1, +\infty)$

الف) $\frac{2}{x^2-8|x-1|-2x+5}$
 $D_f: \mathbb{R} - \{0, -3, 5, 2\}$

$x^2-8|x-1|-2x+5 \neq 0$
 $x < 1 \rightarrow x^2-8x+8-2x+5 \neq 0 \rightarrow x^2-10x+13 \neq 0 \rightarrow x \neq 5, -3$

$x \geq 1 \rightarrow x^2-8x+8-2x+5 \neq 0 \rightarrow x^2-10x+13 \neq 0$
 $x \neq 2, 8$

$D_f: \mathbb{R} - ([5, 8) \cup (2, 5))$

الف) $[-x]-2 \geq 0 \rightarrow (-\infty, -2]$

$[-x] \geq 2$

$-x \geq 2$

$x \leq -2$

$[x] \in \mathbb{N}$

ب) $[x]^2-2[x]-5 \neq 0 \rightarrow [x]^2-2[x] \neq 3$
 $n^2-2n \neq 3 \rightarrow n^2-2n-3 \neq 0 \rightarrow 3, -1 \neq n$

$x \notin [5, 8)$

$x \notin [-1, 0)$

$[x] \neq 3$

$[x] \neq -1$

الف) $[x-\frac{1}{e}] + [x+\frac{1}{e}] \geq 0$
 $x+\frac{1}{e} \geq 1 \rightarrow x \geq \frac{1}{e}$
 $D_f: [\frac{1}{e}, +\infty)$

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

$x-\frac{1}{e} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{e}$

$D_f: \{x | x = k + \frac{1}{e}, k \in \mathbb{Z}\}$

$$a) \frac{\cot x + 1}{\tan x + 1} \rightarrow \tan x + 1 \neq 0$$

$$\tan x \neq -1$$

$$\tan x \rightarrow x \neq k\pi + \frac{\pi}{2}$$

$$\cot x \rightarrow x \neq k\pi$$

$$b) 1 - \varepsilon \sin^2 x \geq 0$$

$$1 \geq \varepsilon \sin^2 x$$

$$\frac{1}{\varepsilon} \geq \sin^2 x \rightarrow \frac{1}{\sqrt{\varepsilon}} \geq |\sin x| \geq -\frac{1}{\sqrt{\varepsilon}}$$

$$D: \mathbb{R} - \left\{ k\pi - \frac{\pi}{\varepsilon} \right\}, \frac{k\pi}{\varepsilon}$$

stann و cobn باید تعریف شوند

1,8

6

$$a) \sqrt{4 \sin x - 1} \rightarrow 4 \sin x - 1 \geq 0$$

$$4 \sin x \geq 1$$

$$\sin x \geq \frac{1}{4}$$

$$D = \left[k\pi + \frac{\pi}{6}, \frac{5\pi}{6} + k\pi \right]$$

2

7

$$b) \sqrt{1 - 2 \cos x} \rightarrow 1 - 2 \cos x \geq 0$$

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

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

$$a) \arcsin(x^2 + 1) \rightarrow -1 \leq x^2 + 1 \leq 1$$

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

$$\Rightarrow \cos y = \sqrt{0 - x^2}$$

$$0 - x^2 \geq 0, x^2 \leq 0 \rightarrow x \leq \frac{0}{1}$$

$$x^2 + 1 \geq -1$$

$$x^2 + 1 \geq 0$$

$$x^2 + 1 \geq 0$$

$$(x+1)(x-1) \geq 0$$

$$x^2 + 1 \leq 0$$

$$x(x+1) \leq 0$$

$$-1 \leq x \leq 0$$

$$-1 \leq \sqrt{0 - x^2} \leq 1 \rightarrow \sqrt{0 - x^2} \leq 1 \rightarrow 0 - x^2 \leq 1$$

$$-0 \leq -x^2 \leq 1$$

$$x^2 \leq 0$$

$$D = [-1, 0]$$

$$x \leq -1, x \geq 1 \rightarrow D = [-1, -1] \cup [1, 1]$$

$$a) 1 - \log^2 x > 0$$

$$1 > \log^2 x$$

$$x > 0$$

$$D = (0, 1)$$

2

9

$$b) 1 - \log^2 \frac{x}{1} > 0$$

$$1 > \log^2 \frac{x}{1}$$

$$\begin{cases} x > 0 \\ x > \frac{1}{e} \end{cases} \rightarrow D = \left(\frac{1}{e}, +\infty \right)$$

$$a) \sqrt{\frac{\varepsilon x - x^2}{2}} - 1 \rightarrow \frac{\varepsilon x - x^2}{2} - 1 \geq 0$$

$$\frac{\varepsilon x - x^2}{2} \geq 1$$

$$\varepsilon x - x^2 \geq 2$$

$$-x^2 + \varepsilon x \geq 2$$

$$-x^2 + \varepsilon x - 2 \geq 0$$

$$x^2 - \varepsilon x + 2 \leq 0$$

$$(x - 1)(x - 1) \leq 0$$

10

$$\Rightarrow \frac{\frac{\varepsilon x - 0}{2} - 1}{\frac{\varepsilon x - 0}{2}} \sim \frac{-\varepsilon x + 2}{\varepsilon x - 0}$$

$$\frac{-\varepsilon x + 2}{\varepsilon x - 0} \sim \frac{-\varepsilon x + 2}{\varepsilon x - 0}$$

2

$$D = \left\{ x \mid x = \frac{\varepsilon x + 2}{\varepsilon x - 0}, k \in \mathbb{W} \right\}$$

$$D = (1, 2)$$

۴- الف) $y = \frac{\cot x + 1}{\tan x + 1}$

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

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

$\rightarrow x \neq \frac{k\pi}{2}$

$\rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{2} \right\}$

