

نام و نام خانوادگی: محمد سید شریانی
پاسخنامه تشریحی تکلیف شماره ۲ کلاس یازدهم سیر A

الف) جمع عبارت برابر است
 $y = \frac{x+3}{2x^2+3x^2-11x+3} \rightarrow \neq 0$
 $2x^2+3x^2-11x+3 \mid x+3 \rightarrow 1$
 $2x^2+3x^2-11x+3$
 $5x^2-11x+3$
 $5x^2-5x+3$
 $-6x+3$
 $-6x+3$
 0
 $D_f = R - \{ -\frac{1}{2}, -\frac{1}{3}, \frac{1}{5} \}$

ب) جمع توان ۵ زوج و فرد برابر است
 $y = \frac{x+3}{2x^2+9x^2+10x+3} \rightarrow \neq 0$
 $2x^2+9x^2+10x+3 \mid x+3 \rightarrow -1$
 $2x^2+9x^2+10x+3$
 $11x^2+10x+3$
 $11x^2+11x+3$
 $-x+3$
 $-x+3$
 0
 $D_f = R - \{ -\frac{1}{2}, -\frac{1}{3}, \frac{1}{5} \}$

الف) شبیه می باشد
 $y = \frac{x+3}{x^2-2x+2x-1} \rightarrow 1$
 $x^2-2x+2x-1 \mid x+3 \rightarrow 1$
 $x^2-2x+2x-1$
 x^2-2x
 $-2x+2x-1$
 $-2x+2x-1$
 -1
 -1
 0
 $D_f = R - \{ 1 \}$

ب) $D_f = (-\infty, -3] \cup (1, +\infty)$
 $x^2-2x+2x-1 \mid x+3 \rightarrow 1$
 $x^2-2x+2x-1$
 x^2-2x
 $-2x+2x-1$
 $-2x+2x-1$
 -1
 -1
 0
 $D_f = R - \{ 1 \}$

$x^2-5|x-1|-2x+8$
 $x < 1 \rightarrow x^2+0x-0-2x+8 = x^2-2x+8 = x(x-2)+8$
 $x > 1 \rightarrow x^2-5x+0-2x+8 = x^2-7x+8 = (x-1)(x-8)$
 $x < 1 \rightarrow D_f = R - \{ 0, 5 \}$
 $x > 1 \rightarrow D_f = R - \{ 2, 8 \}$
 $D_f = R - \{ 0, -5, 2, 8 \}$

الف) $y = \sqrt{-x} - 2$
 $-x-2 \geq 0 \Rightarrow -x \geq 2 \Rightarrow x \leq -2$
 $D_f = (-\infty, -2]$

ب) $y = \frac{5x^2+4}{[x]^2-2[x]-3}$
 $[x] = t \Rightarrow t^2-2t-3 = (t-3)(t+1) = 0$
 $[x] = -1 \Rightarrow x = [-1, 0)$
 $[x] = 3 \Rightarrow x = [3, 4)$
 $D_f = R - ([-1, 0) \cup [3, 4))$

الف) اگر به جای ۲ به ۳ بزاریم عبارت منفی می شود
 $y = \sqrt{[x-\frac{1}{2}]} + [\frac{1}{2} + x]$
 $x + \frac{1}{2} \geq 0 \Rightarrow x \geq -\frac{1}{2}$
 $x - \frac{1}{2} \geq 0 \Rightarrow x \geq \frac{1}{2}$
 $D_f = [\frac{1}{2}, +\infty)$

ب) $y = \sqrt{[x-\frac{1}{2}]} + [\frac{1}{2} + x]$
 $d = a$
 $D_f = \{ x \mid x = n + \frac{1}{2}, n \in \mathbb{Z} \}$

$$y = \frac{\cot x + 1}{\tan x + 1} = \frac{\frac{\cos x}{\sin x} + 1}{\frac{\sin x}{\cos x} + 1} \Rightarrow \cos x \neq 0, \sin x \neq 0, \tan x \neq -1$$

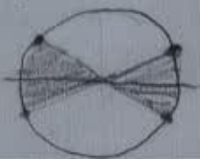


$$D_f = \mathbb{R} - \{n\pi, k\pi + \frac{\pi}{2}, k\pi - \frac{\pi}{2}\}$$

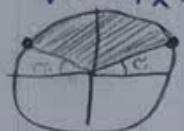
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$$y = \sqrt{1 - \epsilon \sin^2 x} \Rightarrow 1 - \epsilon \sin^2 x \geq 0 \Rightarrow -\epsilon \sin^2 x \geq -1 \Rightarrow \epsilon \sin^2 x \leq 1$$

$$\Rightarrow \sin^2 x \leq \frac{1}{\epsilon} = \frac{1}{4} \Rightarrow \sin x \leq \frac{1}{2} \Rightarrow [k\pi + \frac{\pi}{6}, k\pi - \frac{\pi}{6}] = D_f$$



$$y = \sqrt{5 \sin x - 1} \Rightarrow 5 \sin x - 1 \geq 0 \Rightarrow 5 \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{5}$$

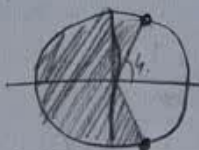


$$\Rightarrow D_f = [k\pi + \frac{\pi}{5}, k\pi + \frac{4\pi}{5}]$$

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$$y = \sqrt{1 - 5 \cos x} \Rightarrow 1 - 5 \cos x \geq 0 \Rightarrow -5 \cos x \geq -1 \Rightarrow 5 \cos x \leq 1$$

$$\Rightarrow \cos x \leq \frac{1}{5} \Rightarrow D_f = [k\pi + \frac{\pi}{5}, k\pi + \frac{4\pi}{5}]$$



$$y = \arcsin(2^x + 2x + 1) \Rightarrow -1 \leq 2^x + 2x + 1 \leq 1$$

$$\Rightarrow 2^x + 2x + 1 \geq -1 \Rightarrow 2^x + 2x + 2 \geq 0 \Rightarrow (2^x + 1)(2^x + 1) \geq 0 \Rightarrow 2^x + 1 \geq 0$$

$$\Rightarrow 2^x + 2x + 1 \leq 1 \Rightarrow 2^x + 2x \leq 0 \Rightarrow 2^x \leq -2x \Rightarrow D_f = [-5, 0] \cup (-\infty, -2] \cup [-1, +\infty) = [-5, -2] \cup [-1, +\infty)$$

$$\cos y = \sqrt{0 - 2x} \Rightarrow 0 \leq 0 - 2x \leq 1$$

$$\begin{cases} 0 - 2x \geq 0 \Rightarrow -2x \geq 0 \Rightarrow 2x \leq 0 \Rightarrow x \leq 0 \\ 0 - 2x \leq 1 \Rightarrow -2x \leq 1 \Rightarrow -2x \leq 1 \Rightarrow x \geq -\frac{1}{2} \end{cases} \Rightarrow D_f = [-\frac{1}{2}, 0]$$

$$y = (\log_2 (1 - \log_2^n)) \Rightarrow 1 - \log_2^n > 0 \Rightarrow \log_2^n < 1 \Rightarrow 2^1 = 2 \Rightarrow x < 2$$

$$D_f = (0, 2)$$

$$y = (\log_2 (1 - \log_2^n)) \Rightarrow 1 - \log_2^n > 0 \Rightarrow \log_2^n < 1 \Rightarrow \frac{1}{2} = \frac{1}{2} \Rightarrow 0 < x < \frac{1}{2}$$

$$D_f = (0, \frac{1}{2})$$

$$y = \sqrt{2^x - 2^x} - 1 \Rightarrow 2^x - 2^x = a \Rightarrow 2^x - 1 \geq 0 \Rightarrow 2^x \geq 1 \Rightarrow 2^x \geq 2^0$$

$$\Rightarrow a \geq 0 \Rightarrow 2^x - 2^x \geq 0 \Rightarrow -2^x + 2^x \geq 0 \Rightarrow 2^x - 2^x \leq 0 \Rightarrow (2^x - 1)(2^x - 1) \leq 0 \Rightarrow D_f = [1, 2]$$

$$y = \left(\frac{2^x + 0}{2^x + 1} \right) \Rightarrow \frac{2^x + 0}{2^x + 1} \geq 0 \Rightarrow 2^x \geq 0 \Rightarrow D_f = (-\infty, -2) \cup [-\frac{0}{2}, +\infty)$$

$$D_f = (-\infty, -2) \cup [-\frac{0}{2}, +\infty)$$