

نام و نام خانوادگی (سوفیلا جیدری) پاسخنامه تشریحی تکلیف شماره ۳ کلاس یازدهم B

الف) $\Rightarrow 2u^3 + 3u^2 - 8u + 3 \neq 0$

$$\frac{2u^3 + 3u^2}{2u^3 - 2u^2} \quad \frac{5u^2 - 8u}{5u^2 - 5u} \quad \frac{-3u + 3}{-3u + 3}$$

$$\frac{u^2 + 5u - 4}{(u-1)(u+4)} \quad \frac{u-1}{u-1} \quad \frac{u+4}{u+4}$$

$$(u-1)(2u^2 + 5u - 3) \neq 0$$

$$\frac{1}{u-1}, -\frac{3}{u+4}$$

$$D_f = \mathbb{R} - \left\{ \frac{1}{u-1}, -\frac{3}{u+4} \right\}$$

ب) $\Rightarrow 2u^3 + 9u^2 + 11u + 3 \neq 0$

$$\frac{2u^3 + 9u^2}{2u^3 + 2u^2} \quad \frac{7u^2 + 11u}{7u^2 + 7u} \quad \frac{4u + 3}{4u + 3}$$

$$\frac{u^2 + 7u + 4}{(u+1)(u+4)} \quad \frac{u+1}{u+1} \quad \frac{u+4}{u+4}$$

$$(u+1)(2u^2 + 7u + 4) \neq 0$$

$$\frac{-4}{u+1}, -\frac{1}{u+4}$$

$$D_f = \left\{ -\frac{4}{u+1}, -\frac{1}{u+4} \right\}$$

الف) $\Rightarrow u^3 - 2u^2 + 2u - 1 \neq 0$

$$\frac{u^3 - 2u^2}{u^3 - u^2} \quad \frac{-u^2 + 2u}{-u^2 + u} \quad \frac{-u + 1}{-u + 1}$$

$$\frac{(u-1)(u^2 - u + 1)}{(u-1)(u^2 - u + 1)} \quad \frac{u-1}{u-1} \quad \frac{u^2 - u + 1}{u^2 - u + 1}$$

$$D_f = \mathbb{R} - \{1\}$$

ب) $\frac{u+3}{u^3 - 2u^2 + 2u - 1} \geq 0$

$$\frac{u+3 \rightarrow -3}{(u-1)(u^2 - u + 1)} \geq 0$$

$$\frac{-3}{+ \quad - \quad +}$$

$$D_f = (-\infty, -3) \cup (1, +\infty)$$

$u^2 - 5(u-1) - 2u + 5 \neq 0$

$u-1 \geq 0 \rightarrow u^2 - 5u + 5 - 2u + 5 \rightarrow u^2 - 7u + 10 \neq 0 \quad (u-2)(u-5) \neq 0$

$u-1 < 0 \rightarrow u^2 + 5u - 5 - 2u + 5 \rightarrow u^2 + 3u \neq 0 \quad u(u+3) \neq 0$

$$D_f = \mathbb{R} - \{-3, 0, 2, 5\}$$

الف) $y = \sqrt{-u-2} \quad [-u]-2 \geq 0 \quad [-u] \geq 2 \quad -u \geq 2 \rightarrow u \leq -2$

$$D_f = (-\infty, -2]$$

ب) $y = \frac{5u^2 + 9}{[u]^2 - 2[u] - 3}$

$$[u]^2 - 2[u] - 3 \neq 0$$

$$([u]+1)([u]-3) \neq 0$$

$$[u] < -1 \quad [u] = -1 \rightarrow -1 < u < 0$$

$$[u] = 3 \rightarrow 3 \leq u < 4$$

$$D_f = \mathbb{R} - \{[-1, 0) \cup [3, 4)\}$$

الف) $y = \sqrt{[u - \frac{1}{u}] + [u + \frac{1}{u}]}$

$$[u - \frac{1}{u}] + [u + \frac{1}{u}] \geq 0 \rightarrow [u - \frac{1}{u}] + [u - \frac{1}{u}] + 1 \geq 0$$

ب) $y = \sqrt{[u - \frac{1}{u}] + [\frac{1}{u} - u]}$

$[t] + [-t] \geq 0 \quad t \in \mathbb{Z} \rightarrow 0 \quad \checkmark$

$t \notin \mathbb{Z} \rightarrow -1 \quad \times$

$u - \frac{1}{u} \in \mathbb{Z} \rightarrow D_f = \{u \mid u = k + \frac{1}{k}, k \in \mathbb{Z}\}$

$$x \neq \frac{k\pi}{r} \quad D_f = \mathbb{R} - \left\{ \frac{k\pi}{r}, k\pi - \frac{\pi}{r} \right\}$$

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

$\tan x \neq -1$

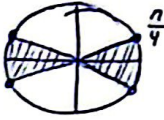


$D_f = \mathbb{R} - \left\{ k\pi - \frac{\pi}{2} \right\}$

$\tan x$ و $\cot x$ باید تعریف شوند!

1.5

ب) $y = \sqrt{1 - \varepsilon \sin^2 x} \rightarrow 1 - \varepsilon \sin^2 x \geq 0 \quad \sin^2 x \leq \frac{1}{\varepsilon} \quad \frac{1}{r} \leq \sin x \leq \frac{1}{r}$



$D_f = \left[k\pi - \frac{\pi}{r}, k\pi + \frac{\pi}{r} \right]$

الف) $y = \sqrt{r \sin x - 1}$

$r \sin x - 1 \geq 0 \quad \sin x \geq \frac{1}{r}$



$D_f = \left[2k\pi + \frac{\pi}{r}, 2k\pi + \frac{\pi}{r} \right]$

ب) $y = \sqrt{1 - r \cos x}$

$1 - r \cos x \geq 0 \quad \cos x \leq \frac{1}{r}$



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

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الف) $y = \arcsin(x^2 + 3x + 1)$ $-1 \leq x^2 + 3x + 1 \leq 1$

$x^2 + 3x + 2 \geq 0 \rightarrow (x+1)(x+2) \geq 0 \quad \frac{-2}{1} \leq x \leq \frac{-1}{1} \quad (-\infty, -2] \cup [-1, \infty)$

$x^2 + 3x \leq 0 \rightarrow x(x+3) \leq 0 \quad \frac{-3}{1} \leq x \leq \frac{0}{1} \rightarrow [-3, 0]$

$D_f = [-3, -2] \cup [-1, 0]$

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ب) $\cos y = \sqrt{\Delta - rx}$ $\Delta - rx \geq 0 \quad rx \leq \Delta \quad x \leq \frac{\Delta}{r}$

$-1 \leq \sqrt{\Delta - rx} \leq 1 \rightarrow \Delta - rx \leq 1 \rightarrow rx \geq \Delta - 1 \quad x \geq \frac{\Delta - 1}{r}$

$D_f = \left[\frac{\Delta - 1}{r}, \frac{\Delta}{r} \right]$

2

الف) $y = \log_r \left(\frac{1 - \log \frac{x}{r}}{r} \right)$

$x > 0$

$1 - \log \frac{x}{r} > 0 \rightarrow \log \frac{x}{r} < 1 \rightarrow x < r$

$D_f = (0, r)$

2

ب) $y = \log_r \left(\frac{1 - \log \frac{x}{r}}{r} \right)$

$x > 0$

$1 - \log \frac{x}{r} > 0 \rightarrow \log \frac{x}{r} < 1 \Rightarrow x > \frac{1}{r}$

$\frac{1}{r} < \frac{1}{r} < 1$

$D_f = \left(\frac{1}{r}, r \right)$

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الف) $\sqrt{r^{\varepsilon x - \omega^r} - 1}$ $r^{\varepsilon x - \omega^r} \geq 1$

$\varepsilon x - \omega^r \geq r \Rightarrow x^r - \varepsilon x + r \leq 0$

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

$\frac{1}{r} \leq x \leq r$

$D_f = [1, r]$

ب) $\left(\frac{r\omega + \Delta}{r\omega + \varepsilon} \right)!$

$\frac{r\omega + \Delta}{r\omega + \varepsilon} \in \mathbb{W}$

$r\omega + \Delta = r\omega\omega + \varepsilon\omega$

$r\omega - r\omega\omega = \varepsilon\omega - \Delta$

$\omega(r - r\omega) = \varepsilon\omega - \Delta \rightarrow \omega = \frac{\varepsilon\omega - \Delta}{r - r\omega}$

$D_f = \left\{ \omega \mid \omega = \frac{\varepsilon\omega - \Delta}{r - r\omega}, k \in \mathbb{W} \right\}$

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الف - ۹ $y = \frac{\cot x + 1}{\tan x + 1}$

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

$x \neq k\pi + \frac{\pi}{4} \cup x \neq k\pi$

$\rightarrow x \neq \frac{k\pi}{4}$

