

۱۹،۵ آفرین ضرب زنی

به نام خدا

تکلیف ۳

فاطمه ملام الحی

یازدهم دی ۱۳۹۶

$$\text{الف) } 2n^3 + 3n^2 - 11n + 3 \neq 0 \quad (x-1)(x-\frac{1}{2})(n+3) \neq 0 \quad (1)$$

$$\begin{array}{r} 2n^3 + 3n^2 - 11n + 3 \mid x-1 \\ - 2n^3 + 2n^2 \\ \hline n^2 - 11n + 3 \end{array}$$

$$D_f = \mathbb{R} - \left\{1, \frac{1}{2}, -3\right\}$$

$$\begin{array}{r} \Delta n^2 - 11n + 3 \\ - \Delta x^2 - \Delta n \\ \hline -11n + 3 \\ - -11n + 3 \\ \hline 0 \end{array} \quad \Delta = 121 - 4(-3)(3) = 149$$

$$x_{1,2} = \frac{-\Delta \pm \sqrt{\Delta}}{a} = \frac{11 \pm \sqrt{149}}{2}$$

$$\text{ب) } 2n^3 + 9n^2 + 10n + 3 \neq 0 \quad 2n^3 + 9n^2 + 10n + 3 \mid x+1$$

$$D_f = \mathbb{R} - \left\{-1, -\frac{1}{2}, -\frac{1}{3}\right\}$$

$$(n+1)(n+\frac{1}{2})(n+\frac{1}{3}) \neq 0$$

$$\begin{array}{r} 2n^3 + 9n^2 + 10n + 3 \mid x+1 \\ - 2n^3 + 2n^2 \\ \hline 7n^2 + 10n + 3 \\ - 7n^2 + 7n \\ \hline 3n + 3 \\ - 3n + 3 \\ \hline 0 \end{array} \quad \Delta = 100 - 4(9)(3) = 4$$

$$x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{a} = \frac{-10 \pm 2}{7} = -\frac{1}{7}, -\frac{1}{3}$$

$$\text{ج) } 2n^3 - 2n^2 + 2n - 1 \neq 0 \quad 2n^3 - 2n^2 + 2n - 1 \mid x-1$$

$$\begin{array}{r} 2n^3 - 2n^2 + 2n - 1 \mid x-1 \\ - 2n^3 + 2n^2 \\ \hline 2n - 1 \\ - 2n + 2 \\ \hline 1 \end{array} \quad \Delta = 1 - 4(1)(1) < 0$$

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

$$\text{د) } \frac{x^3 + 1}{x^3 - 2x^2 + 2x - 1} \geq 0 \quad , \quad x^3 - 2x^2 + 2x - 1 \neq 0$$

$$\frac{x+1}{(x-1)(x^2-x+1)} \geq 0$$

$$\begin{array}{r} x^3 - 2x^2 + 2x - 1 \mid x-1 \\ - x^3 + 2x^2 \\ \hline 2x - 1 \\ - 2x + 2 \\ \hline 1 \end{array} \quad \Delta = 1 - 4(1)(1) < 0$$

$$\begin{array}{c} -1 \\ \hline +1 \end{array} \quad \begin{array}{c} 1 \\ \hline 0 \end{array} \quad \begin{array}{c} 1 \\ \hline 0 \end{array}$$

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

Arman

$$\begin{aligned} \omega &\leftarrow \quad \rightarrow r \\ (x-a)(x-r) &= 0 \\ x^r - v n + 1 &= 0 \end{aligned}$$

$$x^r - a(n-1) - rn + a \neq 0$$

$$\begin{cases} x^r - a(x-1) = rn + a & x \geq 0 \\ x^r + a(x-1) = rn + a & x \leq 0 \end{cases}$$

$$D_f = \mathbb{R} - \{-r, 0, r, a\}$$

$$x^r + rx = 0$$

$$x = 0 \quad \rightarrow \quad x = -r$$

$$\text{الف)} \quad [-x] - r \geq 0 \Rightarrow [-x] \geq r$$

$$[t] \geq r \Rightarrow t \geq r \Rightarrow -x \geq r \Rightarrow x \leq -r$$

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

$$\text{ب)} \quad [x] = t \quad t^r - rt - r \neq 0 \Rightarrow t \neq -1, r$$

$$[x] \neq -1, r \Rightarrow x \notin [-1, 0) \cup [r, r)$$

$$D_f = \mathbb{R} - \left[[-1, 0) \cup [r, r)\right] = (-\infty, -1) \cup [0, r) \cup [r, +\infty)$$

الف)

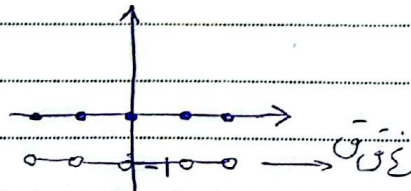
$$1 - [x - \frac{1}{p}] + [x + \frac{1}{p}] \geq 0 \Rightarrow r[x + \frac{1}{p}] \geq 1 \Rightarrow [x + \frac{1}{p}] \geq \frac{1}{r} \quad \text{د)}$$

$$\Rightarrow 1 \leq x + \frac{1}{p} \Rightarrow x \geq 1 - \frac{1}{p}$$

$$D_f = \left[\frac{1}{p}, +\infty\right)$$

$$\text{ب)} \quad [x - \frac{1}{p}] + [\frac{1}{p} - x] \Rightarrow [t] + [-t] \geq 0 \Rightarrow t \in \mathbb{Z}$$

$$x - \frac{1}{p} \in \mathbb{Z} \Rightarrow$$



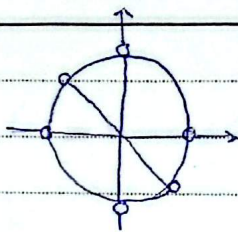
$$D_f = \{x \mid x = k + \frac{1}{p}, k \in \mathbb{Z}\}$$

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ا) $\sin x, \cos x \neq 0$

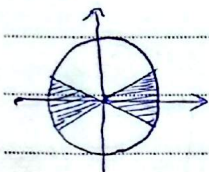
$\tan x + 1 \neq 0 \Rightarrow \tan x \neq -1$

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



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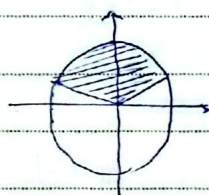
ب) $1 - r \sin^2 x \geq 0 \Rightarrow 1 \geq r \sin^2 x \Rightarrow \sin^2 x \leq \frac{1}{r} \Rightarrow$



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

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

ج) $r \sin x - 1 \geq 0 \Rightarrow \sin x \geq \frac{1}{r}$



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

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د) $1 - r \cos x \geq 0 \Rightarrow \frac{1}{r} \geq \cos x$



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

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ه) $x^2 + r x + 1 \leq 1 \Rightarrow x^2 + r x \leq 0$

$x^2 + r x \leq 0 \Rightarrow x(x + r) \leq 0$

$D_f = [-r, 0] \cup [0, r]$

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و) $a - r x \geq 0 \Rightarrow x \leq \frac{a}{r}$

$-1 \leq \sqrt{a - r x} \leq 1 \Rightarrow a - r x \leq 1 \Rightarrow r \leq x$

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$D_f = [r, a]$

ز) $1 - \log_r x \geq 0 \Rightarrow 1 \geq \log_r x \Rightarrow x \leq r$

الح) $\log_r x > 0$

$D_f = (0, r)$

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Arman

$$1 - \log \frac{x}{p} > 0 \Rightarrow 1 > \log \frac{x}{p} \Rightarrow x < \frac{1}{p} \Rightarrow D_p = \left(\frac{1}{p}, 1 \right)$$

(1/p + 1)

$\log \frac{x}{p} > 0$

منابع و التبعه

$$p^{fn-n} - p^p > 0 \Rightarrow p^{-x^p + fn} > p^p \Rightarrow -x^p + \epsilon n > p \Rightarrow x^p - \epsilon n + p < 0 \Rightarrow \frac{1}{p} < x < \frac{1}{p} + \epsilon$$

(10)

$D_p = \left[\frac{1}{p}, \frac{1}{p} + \epsilon \right]$

$$\frac{pn+a}{pn+\epsilon} \in W \Rightarrow \frac{-(pw-a)}{pw-p} = x \Rightarrow$$

في

$$D_p = \left\{ x \mid x = \frac{-(kw+a)}{kw-p}, k \in W \right\}$$

$$\frac{px+a}{pn+\epsilon} \in W \Rightarrow pw-n + \epsilon w = px+a \Rightarrow$$

$$x(pw-p) = a - \epsilon w \Rightarrow x = \frac{-(pw+a)}{pw-p}$$