

ليبدأ ديفر اصنف A يا زعم ديفر A شجرة باللف : 4

① $y = \sqrt{(a-r)x^2 + ax + b} \rightsquigarrow a-r=0 \rightarrow a=r$

$$\sqrt{rn+b} \rightarrow \frac{-b}{r} = 10 \rightarrow b = -4$$

② $\sqrt{x^2 + 2x + 1 - m^2}$ $\frac{1}{2} \frac{d}{dx} (x^2 + 2x + 1 - m^2)$

$$x^r + rx + r - m^r \geq 0 \rightsquigarrow \min_{x \in \mathbb{R}} = \frac{-r}{1} = -1 \quad \text{with } 1 - r + r - m^r \geq 0, m^r \leq 1, -1 \leq m \leq 1$$

$$y = \frac{\sqrt{1 - (-1)^r}}{[1] + [1] + 1} = \frac{\sqrt{2}}{1} \quad \checkmark$$

(iv) $x \geq 0 \rightarrow x \leq x \rightarrow -x \leq x \leq x \quad \text{I} \rightsquigarrow -x \leq 0 \leq x \quad \sim$

نظر: x عدد صحیح باشد، برآید: $(-1)^x = 1$ است. $\rightarrow [x] + [-x] \neq -1 \rightarrow [x] + [-x] + 1 \neq 0$

⑦ انب) $\sqrt{x^r(x+r)} \geq 0$ $\left| \begin{array}{cc} -r & * \\ -p+r & + \end{array} \right| p \cdot (-r+r)$

$x = \pm 1$
 $\Rightarrow \frac{(x^r - 1)(x^r - r x^r)}{x^r - 1} = \frac{x^r(x^r - r)}{x^r - 1}$
 $\frac{-1}{+} \frac{0}{-} \frac{1}{-} \frac{r}{+}$
 $P = (-\infty, -1] \cup \{1\} \cup [r, +\infty)$
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$$x-2 \geq 1 \Rightarrow x \geq 3 \Rightarrow D_f = (-\infty, -1] \cup [3, +\infty)$$

⑤ ا) $\sqrt{|x-2|} \geq 0 \rightarrow |x-2| \geq 0 \rightarrow x-2 \geq -1 \rightarrow x \geq 1$

$$\text{ب) } \sqrt{f(x)} \sim f(x) \geq 0 \rightarrow |x-1| \leq 1 \rightarrow -1 \leq x-1 \leq 1 \xrightarrow{+1} 0 \leq x \leq 2$$

④) $1 - x|x| \geq 0 \iff x|x| \leq 1 \iff \left\{ \begin{array}{l} x = |x| \xrightarrow{x \geq 0} x \leq 1 \implies 0 \leq x \leq 1 \\ -x = |x| \xrightarrow{x \leq 0} x \leq 0 \text{ (given)} \end{array} \right\} D_f = (-\infty, 1]$

ج) $\frac{1}{\sqrt{r^2 - |x - \omega|} - 1} \rightsquigarrow r^2 - |x - \omega| > 0 \quad r > |x - \omega| \rightsquigarrow -r < x - \omega < r \xrightarrow{+ \omega} r < x < r + \omega \rightsquigarrow \frac{r}{\omega} < \frac{x}{\omega} < \frac{r + \omega}{\omega}$

$$|r - \ln - 0| \geq 0$$

$$|r - \ln - 0| - 1 \neq 0$$

(v) الف) $\cos \neq 0 \leadsto R - \left\{ k\pi + \frac{\pi}{2} \right\}$

$$\rightarrow \frac{\cos}{r \cos - 1} \rightarrow r \cos - 1 \neq 0, \cos \neq \frac{1}{r}$$

$$R = \left\{ r | e^{i\pi \pm \frac{\pi}{n}} \right\}$$

⑨ الف) $\frac{x+r}{|rx+1|-|x+r|} \rightarrow |rx+1| = |x+r| \rightarrow rx+1 = x+r \sim x=r$
 $rx+1 = -x-r \sim x = -\frac{r}{r}$ } $D_f \cdot R = \left\{ r, -\frac{r}{r} \right\}$

ب) $\sqrt{|rx+1|-|x+r|} \sim |rx+1|-|x+r| \geq 0 \rightarrow |rx+1| \geq |x+r|$ $\left\{ \begin{array}{l} -r \leq x \rightarrow x \leq -r \\ -\frac{1}{r} \leq x \leq -r \rightarrow -r \leq x \leq -\frac{r}{r} \\ -\frac{1}{r} \geq x \rightarrow x \geq r \end{array} \right\}$ $D_f = \left(-\infty, -\frac{r}{r} \right] \cup [r, \infty)$

① $\sqrt{\log \frac{(rx-1)}{x}}$
 $\log \frac{(rx-1)}{x} \geq 0 \rightarrow rx-1 \geq x \rightarrow x > \frac{1}{r}$ (1)
 $\log \frac{(rx-1)}{x} \geq 0 \rightarrow rx-1 \geq 1 \rightarrow x > 1$ (2)
 $\log \frac{(rx-1)}{x} \geq 0 \rightarrow 0 < \log \frac{(rx-1)}{x} < 1 \rightarrow \log \frac{(rx-1)}{x} < 1 \rightarrow rx-1 < x \rightarrow r < x$ (3)
 $\rightarrow D_f = 1 < x \leq r \rightarrow (1, r]$ (4)

⑩ الف) $\log \frac{r \cos x + 1}{x+1} \rightarrow r \cos x + 1 > 0 \sim \cos x > -\frac{1}{r}$  $D_f = R - \left[r\pi + \frac{\pi}{r}, r\pi + \frac{\pi}{r} \right]$

این بازه هم به ندرت می‌تواند این است که منفی کنیم و منفی است!

ب) $\log \frac{x-1}{x+1}$
 $\frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 0 \rightarrow x-1 > 0 \rightarrow x > 1$ (1)
 $\frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 0 \rightarrow x-1 > 0 \rightarrow x > 1$ (2)

$\log \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow x-1 \geq x+1 \rightarrow -2 \geq 0$ خارج می‌شود! باطل!

$x+1 \leq 0 \rightarrow x \leq -1$ (3)
 $D_f = (-\infty, -1]$ (4)

(۳) عبارت مفرج باید مخالف ۰ باشد!

$$x \in \mathbb{Z} = \frac{[n] + [-n]}{1} + 1 = 1 \quad \checkmark$$

$$x \notin \mathbb{Z} = \frac{[n] + [-n]}{-1} + 1 = 0 \quad \times$$

$[n] + [-n] + 1$

$x \in \mathbb{Z}$

عبارت زیر را سیکال ناقص است!

$$4 - n^2 \geq 0 \rightarrow n^2 \leq 4 \rightarrow -2 \leq n \leq 2$$

$$\hookrightarrow D_f = \{-2, -1, 0, 1, 2\}$$

دامنه شامل ۵ عدد صحیح است!

۴- ب) $3 - |n - 5| \geq 0 \rightarrow |n - 5| \leq 3 \rightarrow -3 \leq n - 5 \leq 3 \rightarrow 2 \leq n \leq 8$

$$\sqrt{3 - |n - 5|} - 1 \neq 0 \rightarrow \sqrt{3 - |n - 5|} \neq 1 \rightarrow 3 - |n - 5| \neq 2 \rightarrow |n - 5| \neq 2 \rightarrow n \neq 3, 7$$

$$D_f = [2, 8] - \{3, 7\} = [2, 3) \cup (3, 7) \cup (7, 8]$$