

۱۸/۱/۱۵  
باردنت بیشتری حل کن!

الف)  $\frac{x+3}{2x^3 + 9x^2 + 10x + 3} \xrightarrow{x_0 = -1, x_1 = 0} (x-1)(2x^2 + Ax - 3)$   
 $2x^3 + 9x^2 + 10x + 3 \xrightarrow{x_0 = -1, x_1 = 0} (x-1)(2x^2 + Ax - 3)$   
 $Ax^2 - 2x^2 = -3x^2 \Rightarrow A = -3$   
 $= (x-1)(2x^2 - 3x - 3)$   
 $x = \frac{-2 \pm \sqrt{4 + 24}}{4} = \frac{-2 \pm \sqrt{28}}{4} = \frac{-1 \pm \sqrt{7}}{2}$   
 $D_f = \mathbb{R} - \left\{ \frac{-1 + \sqrt{7}}{2}, \frac{-1 - \sqrt{7}}{2} \right\}$

ب)  $\frac{x+3}{2x^3 + 9x^2 + 10x + 3} \xrightarrow{x_0 = -1, x_1 = 0} (x+1)(2x^2 + Ax + 3)$   
 $2x^3 + 9x^2 + 10x + 3 \xrightarrow{x_0 = -1, x_1 = 0} (x+1)(2x^2 + Ax + 3)$   
 $Ax^2 + 2x^2 = 9x^2 \Rightarrow A = 7$   
 $= (x+1)(2x^2 + 7x + 3)$   
 $x = \frac{-7 \pm \sqrt{49 - 24}}{4} = \frac{-7 \pm \sqrt{25}}{4} = \frac{-7 \pm 5}{4}$   
 $D_f = \mathbb{R} - \left\{ -1, -\frac{3}{2} \right\}$

الف)  $\frac{x+3}{x^3 - 2x^2 + 2x - 1} \xrightarrow{x_0 = 1, x_1 = 0} (x-1)(x^2 + Ax + 1)$   
 $x^3 - 2x^2 + 2x - 1 \xrightarrow{x_0 = 1, x_1 = 0} (x-1)(x^2 + Ax + 1)$   
 $Ax^2 - x^2 = -2x^2 \Rightarrow A = -2$   
 $= (x-1)(x^2 - 2x + 1)$   
 $x = \frac{2 \pm \sqrt{4 - 4}}{2} = 1$   
 $D_f = \mathbb{R} - \{1\}$

ب)  $\sqrt{\frac{x+3}{x^3 - 2x^2 + 2x - 1}} \xrightarrow{\text{بخش به بخش با قسمت الف}} \sqrt{\frac{x+3}{(x-1)(x^2 - 2x + 1)}}$   
 $x = -1$   
 $D_f = (-\infty, -1) \cup (1, \infty)$

$y = \frac{2}{x^2 - 2|x-1| - 2x + 2}$   
 $D_f = \mathbb{R} - \{-1, 0, 1, 2\}$

$x \geq 1 \rightarrow x^2 - 2x + 0 - 2x + 2 = x^2 - 4x + 2 \rightarrow x = 2, 0$   
 $x < 1 \rightarrow x^2 + 2x - 2 - 2x + 2 = x^2 \rightarrow x = 0, -2$

میزان است [۵] از ۲ بیاید با ماسه بیاید نه نقطه صاف می آید

$y = \sqrt{[-x] - 2} \rightarrow [-x] \geq 2 \rightarrow 2 \leq -x < 3 \rightarrow -2 \geq x > -3$   
 $[-x] \geq 2 \rightarrow -x \geq 2 \rightarrow x \leq -2$   
 $D_f = (-\infty, -2]$

$y = \frac{2x^2 + 9}{[x]^2 - 2[x] - 2} \rightarrow ([x] - 3)([x] + 1)$   
 $D_f = \mathbb{R} - \{[2, 3) \cup [-1, 0)\}$

$y = \sqrt{[x - \frac{1}{2}] + [x + \frac{2}{3}]} \Rightarrow y = \sqrt{2[x + \frac{1}{6}] - 1} \rightarrow [x + \frac{1}{6}] \geq \frac{1}{2} \rightarrow x \geq \frac{1}{3}$   
 $D_f = [\frac{1}{3}, \infty)$

$y = \sqrt{[x - \frac{1}{2}] + [\frac{1}{2} - x]} \rightarrow \sqrt{[t] + [-t]} \rightarrow (t \geq 0) \in \mathbb{Z}$   
 $\rightarrow x - \frac{1}{2} \in \mathbb{Z}^+ \rightarrow x \in \mathbb{Z}^+ + \frac{1}{2}$



$D_f = \{x \mid x \geq \frac{1}{3} \text{ و } x \in \mathbb{Z} + \frac{1}{2}\}$

$$y = \frac{\cot x + 1}{\tan x + 1} \rightarrow y = \frac{\frac{\cos x}{\sin x} + 1}{\frac{\sin x}{\cos x} + 1} \rightarrow \frac{\cos x + \sin x}{\sin x + \cos x} = \frac{\cos x}{\sin x} = \cot x$$

$$y = \sqrt{1 - \varepsilon \sin^2 x} \rightarrow \sin^2 x \leq \frac{1}{\varepsilon} \rightarrow \frac{1}{\varepsilon} \leq \sin x \leq \frac{1}{\varepsilon} \rightarrow D_f = \left[ k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2} \right]$$

$$y = \sqrt{r \sin x - 1} \rightarrow \sin x \geq \frac{1}{r} \rightarrow D_f = \left[ r k \pi + \frac{\pi}{2}, r k \pi + \frac{\pi}{2} \right]$$

$$y = \sqrt{1 - r \cos x} \rightarrow \cos x \leq \frac{1}{r} \rightarrow D_f = \left[ r k \pi + \frac{\pi}{2}, r k \pi + \frac{\pi}{2} \right]$$

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

$$\text{II} \quad \frac{-r}{+} - \frac{-1}{+} = \frac{r}{+} \rightarrow x^2 + 2x + 1 \geq 0 \rightarrow x^2 + 2x \leq 0 \rightarrow \frac{-r}{+} - \frac{r}{+} \text{ I}$$

$$\text{I} \cap \text{II} \rightarrow D_f = [-r, -1] \cup [-1, 0]$$

$$y = \cos y = \sqrt{\delta - r x} \rightarrow \delta - r x \geq 0 \rightarrow x \leq \frac{\delta}{r}$$

$$\rightarrow \sqrt{\delta - r x} \leq 1 \rightarrow r x \geq \delta - 1 \rightarrow x \geq \frac{\delta - 1}{r} \rightarrow D_f = \left[ \frac{\delta - 1}{r}, \frac{\delta}{r} \right]$$

$$y = \log_r(1 - \log_r x) \rightarrow x > 0$$

$$1 - \log_r x > 0 \rightarrow \log_r x < 1 \rightarrow x < r \rightarrow D_f \in \emptyset$$

$$y = \log_r(1 - \log_r \frac{1}{r}) \rightarrow x > 0$$

$$1 > \log_r x \rightarrow x < \frac{1}{r}$$

$$\log_r \frac{1}{r} < 1 \rightarrow x > \frac{1}{r} \rightarrow D_f = (\frac{1}{r}, +\infty)$$

چون متناهی است و ثابت است

$$y = \sqrt{r^{\varepsilon x - x^2}} - 1 \rightarrow \varepsilon x - x^2 \geq r \rightarrow x^2 - \varepsilon x + r \leq 0$$

$$\rightarrow D_f = [-1, +\infty]$$

$$y = \left( \frac{r x + \delta}{r x + \varepsilon} \right)!$$

$$\rightarrow \frac{r x + \delta}{r x + \varepsilon} \in \mathbb{N} \rightarrow x \in \frac{\varepsilon \mathbb{N} - \delta}{r \mathbb{N} - r}$$

$$\rightarrow D_f = \left\{ x \mid x = k, k \in \frac{\varepsilon \mathbb{N} - \delta}{r \mathbb{N} - r} \right\}$$

$$4 - \text{الف}) \quad [-n] - 2 \geq 0 \rightarrow [-n] \geq 2 \rightarrow -n \geq 2 \rightarrow n \leq -2 \rightarrow D_f = (-\infty, -2]$$

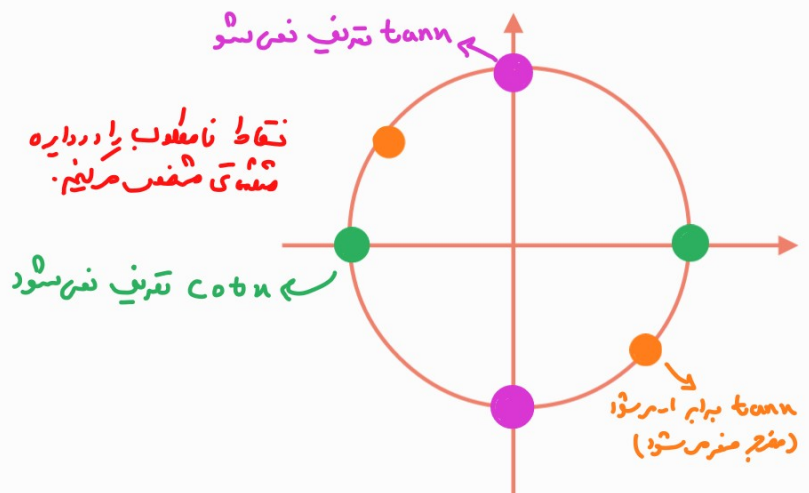
$$4 - \text{الف}) \quad y = \frac{\cot x + 1}{\tan x + 1}$$

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

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

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

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



$$4 - \text{ب}) \quad y = \log_r^{(1 - \log_r^n \frac{1}{r})} \rightarrow \log_r^n \frac{1}{r} \rightarrow n > 0$$

$$\rightarrow 1 - \log_r^n \frac{1}{r} > 0 \rightarrow \log_r^n \frac{1}{r} < 1 \xrightarrow{\text{منابعین (1 و 0)}} n > \frac{1}{r}$$

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

$$4 - \text{الف}) \quad y = \log_r^{(1 - \log_r^n 3)} \rightarrow \log_r^n 3 \rightarrow n > 0$$

$$\rightarrow 1 - \log_r^n 3 > 0 \rightarrow \log_r^n 3 < 1 \rightarrow n < 3$$

$$D_f = (0, 3)$$