

الف) $\frac{\cot \alpha + 1}{\tan \alpha + 1}$

$\cot = \frac{\cos}{\sin}$ $\tan \alpha = \frac{\sin}{\cos}$

ممكن

$\sin \alpha \neq 0 \rightarrow \alpha \neq k\pi$, $\cos \alpha \neq 0 \rightarrow \alpha \neq \frac{k\pi}{2}$

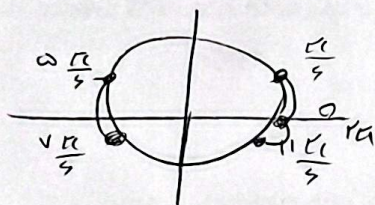
$\tan \alpha \neq -1 \rightarrow \alpha \neq \frac{k\pi - \pi}{2}$

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

ب) $\sqrt{1 - F \sin^2 \alpha}$ $1 - F \sin^2 \alpha \geq 0$

$1 \geq F \sin^2 \alpha \Rightarrow \frac{1}{F} \geq \sin^2 \alpha \Rightarrow$

$\frac{1}{F} \geq \sin \alpha \geq -\frac{1}{F}$



$\alpha \in \left[0, \frac{\pi}{2}\right] \cup \left[\frac{3\pi}{2}, \frac{5\pi}{2}\right] \cup \left[\frac{11\pi}{4}, \frac{13\pi}{4}\right]$

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

-v

الف) $y = \sqrt{F \sin \alpha - 1}$

$F \sin \alpha - 1 \geq 0 \Rightarrow \sin \alpha \geq \frac{1}{F}$

$\sin \frac{\pi}{2}, \frac{3\pi}{2} = \frac{1}{F}$

$D_f = \left[\frac{\pi}{2} + k\pi, \frac{3\pi}{2} + k\pi\right]$

ب) $y = \sqrt{1 - F \cos \alpha}$

$1 - F \cos \alpha \geq 0 \Rightarrow F \cos \alpha \leq 1$

$\cos \alpha \leq \frac{1}{F}$

$D_f = \left[\frac{\pi}{F} + k\pi, \frac{3\pi}{F} + k\pi\right]$

$\cos \frac{\pi}{F}, \frac{3\pi}{F} = \frac{1}{F}$

$$\text{الف) } y = \arcsin(x^r(x+1)) \quad -1 \leq x^r(x+1) \leq 1 \rightarrow x^r(x+1) \geq -1 \quad x^r(x+1) \leq 1$$

$$\text{ب) } g \text{ easy } = \sqrt{\omega - rx}$$

$$0 \leq \sqrt{\omega - rx} \leq 1 \quad 0 \leq \omega - rx \leq 1$$

$$\omega - rx \geq 0 \Rightarrow x \leq \frac{\omega}{r}$$

$$\omega - rx \leq 1 \Rightarrow -rx \leq 1 - \omega \Rightarrow x \geq \frac{\omega - 1}{r} \quad D_f = \left[\frac{\omega - 1}{r}, \frac{\omega}{r} \right]$$

$$D_f = [-1, -\frac{1}{2}] \cup [-1, 0]$$

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$$\text{الف) } y = \log_r(1 - \log_\mu x)$$

$$x > 0$$

$$1 - \log_\mu x > 0 \Rightarrow \log_\mu x < 1 \Rightarrow x < \mu$$

$$D_f = (-\infty, \mu)$$

$$\text{ب) } \log_r(1 - \log_{\frac{1}{r}} x)$$

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

$$\frac{1}{r} > x \quad D_f = (-\infty, \frac{1}{r})$$

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$$\text{الف) } y = \sqrt[r]{rx - x^r} - 1$$

$$rx - x^r - 1 \geq 0$$

$$rx - x^r \geq 1 \Rightarrow rx \geq 1 + x^r$$

$$D_f = [1, \mu]$$

$$\frac{x}{1} \geq \frac{1}{\mu} \Rightarrow x \geq \frac{1}{\mu}$$

$$rx - x^r \geq \mu \Rightarrow -x^r + rx - \mu \geq 0$$

$$(x-1)(x-\mu) \leq 0 \Rightarrow x \in [1, \mu]$$

$$\text{ب) } y = \left(\frac{rx + \omega}{rx + r} \right)!$$

$$\frac{rx + \omega}{rx + r} \leq w \Rightarrow \frac{rx + \omega}{rx + r} = w \Leftrightarrow rx + \omega = rxw + rw$$

$$rx + rxw = rw - \omega$$

$$D_f = \{x/x = \frac{rw - \omega}{r + rw}, K \in W\} \quad x(\mu + rw) = rw - \omega \Rightarrow x = \frac{rw - \omega}{\mu + rw}$$

اشياء رستگار

$$\begin{array}{r} \cancel{r_1 x} + \cancel{r_2 x} + \cancel{r_3 x} + \dots + \cancel{r_n x} + r_{n+1} x + r_{n+2} x + \dots + r_{n+k} x + \dots \\ - \cancel{r_1 x} + \cancel{r_2 x} + \cancel{r_3 x} + \dots + \cancel{r_n x} + r_{n+1} x + r_{n+2} x + \dots + r_{n+k} x + \dots \\ \hline \omega x^k - \lambda x + \mu \\ \omega x^k + \omega x \\ \hline - r_{n+1} x + \mu \\ + r_{n+2} \omega x \\ \hline \dots \end{array} \quad \bigg| \quad \frac{x-1}{r_1 x^r + \omega x - \mu}$$

$$r_{\alpha}^* = \omega_{\alpha} - r^* \Rightarrow \Delta = r_{\alpha} - \frac{F(r^*)}{F(r^*) - r^*} = r_{\alpha} \rightarrow r^* = \frac{-\omega_{\alpha} \pm \sqrt{\omega_{\alpha}^2 + 4r^*}}{2}$$

$$\begin{array}{r} r_x^v + q_x^v + l_x + v \\ - r_x^v - r_x^v \\ \hline \sqrt{x}^v + l_x + v \\ - \sqrt{x}^v + v\sqrt{x} \\ \hline v\sqrt{x} + v\sqrt{x} \\ \hline v\sqrt{x} + v\sqrt{x} \\ \hline 0 \end{array} \quad \bigg| \quad \frac{x+1}{r_x^v + v\sqrt{x} + v} \quad \rightarrow \quad (x+1) \quad (r_x^v + v\sqrt{x} + v)$$

$$R_f = R - \left\{ -\frac{v}{r} - 1, -\frac{1}{r} \right\}$$

$$x = \frac{-v \pm \sqrt{v^2 + r^2}}{r}$$

$$R_f = R - \left\{ -\frac{r}{2}, -1, -\frac{1}{r} \right\} \quad x = \frac{-v \pm \sqrt{v^2 - 4r}}{r} \rightarrow \begin{pmatrix} r \\ -\frac{1}{r} \end{pmatrix}$$

$$D_f = R - \zeta + 1 \quad ?$$

$$\begin{array}{r} x^3 - x^2 + x - 1 \quad | \quad x - 1 \\ -x^3 + x^2 \quad | \\ \hline x^2 - x - 1 \\ -x^2 + x - 1 \\ \hline 2x - 2 \\ -2x + 2 \\ \hline 0 \end{array}$$

$$(x-1)(x^k - x + 1)$$

$\textcircled{+} \quad \Delta = 1$

النتيجة $\Delta = 1 - f(1)(1) < 0 \Rightarrow$

برای x محاسبه می‌کنیم

$$x^3 - 2x^2 + 2x - 1$$

$(x-1)(x^2 - x + 1)$
 $\Delta < 0 \rightarrow$

$$\begin{array}{c|ccc} x & - & \infty & \rightarrow & 1 \\ \hline & + & 0 & - & 0 & + \end{array}$$

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

الف) $\sqrt{[x] - 2}$

$[x] - 2 \geq 0$

$[x] \geq 2 \Rightarrow x \geq 2$

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

$\Rightarrow (x \leq -2)$

ب) $\frac{5x^2 + 4}{[x]^2 - 2[x] - 3}$

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

$([x] - 3)([x] + 1)$

$[x] \neq 3, -1$

$[x] = -1 \Rightarrow -1 \leq x < 0$

$[x] = 3 \Rightarrow 3 \leq x < 4$

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

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

$(x - \frac{1}{p}) + 1$

$2[x - \frac{1}{p}] + 1 \geq 0 \Rightarrow n = [x - \frac{1}{p}] \Rightarrow 2n + 1 \geq 0 \Rightarrow n \geq -\frac{1}{2} \Rightarrow n \geq 0$

لذلك يجب أن يكون $n \geq 0$

$[x - \frac{1}{p}] \geq 0 \Rightarrow x - \frac{1}{p} \geq 0 \Rightarrow x \geq \frac{1}{p} \Rightarrow D_f = [\frac{1}{p}, +\infty)$

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

$a = x - \frac{1}{p}$

$a \in \mathbb{Z} \quad [a] + [-a] = 0 \Rightarrow x - \frac{1}{p} \in \mathbb{Z} \Rightarrow x \in \mathbb{Z} + \frac{1}{p}$

$a \notin \mathbb{Z} \quad [a] + [-a] = -1$

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