

$$\sqrt{\frac{x^2-4x}{x^2-x}} \quad \frac{x^0(x^4-4)}{x^0(x^4-1)} \geq 0 \quad \frac{-1 \quad 0 \quad 1 \quad 4}{-\frac{1}{x} + \frac{1}{x} + \frac{1}{x} - \frac{1}{x} +} \quad \text{دامنه مستأد 1}$$

$$(-1, 0) \cup (0, 1) \cup [4, +\infty)$$

$$\sqrt{\frac{x^2-x^2}{x^2-x}} \quad \frac{x^0(x^4-1)}{x^0(x^4-1)} \geq 0 \quad \frac{-1^* \quad 0^* \quad 1^*}{+\frac{1}{x} + \frac{1}{x} + \frac{1}{x} +} \quad \mathbb{R} - \{0, \pm 1\}$$

$$\frac{x+1}{\sqrt{x+|x|}} \quad x+|x| > 0 \quad |x| > -x \quad \mathbb{R}^+ \quad \text{دامنه مستأد 2}$$

$$\frac{1}{\sqrt{x|x|}} \quad x|x| > 0 \quad \mathbb{R}^+ \quad \text{دامنه مستأد 3}$$

$$\sqrt{x-[x]} \quad x-[x] \geq 0 \quad x \geq [x] \quad (-\infty, \infty)$$

$$\frac{1}{\sqrt{x-[x]}} \quad x-[x] > 0 \quad x > [x] \quad (-\infty, \infty)$$

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

$$[x+\frac{1}{x}] \geq \frac{1}{x} \quad x[x+\frac{1}{x}]-1 \geq 0 \quad [\frac{1}{x}, +\infty)$$

$$\sqrt{[x-\frac{1}{x}] + [-x+\frac{1}{x}]} \quad [x-\frac{1}{x}] + [-(x-\frac{1}{x})] \geq 0$$

$$\left\{ \begin{array}{l} [x] + [-x] \rightarrow 0 \\ [x] + [-x] \rightarrow -1 \end{array} \right. \quad \begin{array}{l} x \in \mathbb{Z} \rightarrow 0 \\ x \notin \mathbb{Z} \rightarrow -1 \end{array}$$

$$x - \frac{1}{x} \in \mathbb{Z} \quad \{x \mid x = k + \frac{1}{x}, k \in \mathbb{Z}\}$$

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

$$\sin x \neq 1$$



$$\mathbb{R} - \{k\pi + \frac{\pi}{2}\}$$

$$\frac{x}{x \sin^2 x - 1}$$

$$\mathbb{R} - \{k\pi \pm \frac{\pi}{k}\}$$

$$x \sin^2 x - 1 \neq 0$$

$$\sin^2 x = \frac{1}{x}$$

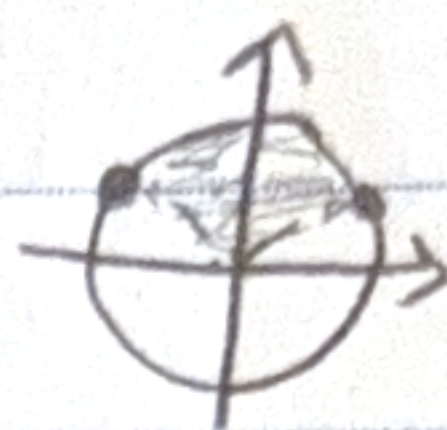
$$\sin x = \pm \frac{\sqrt{x}}{x}$$



$$y = \sqrt{r \sin u - 1}$$

$$r \sin u - 1 \geq 0$$

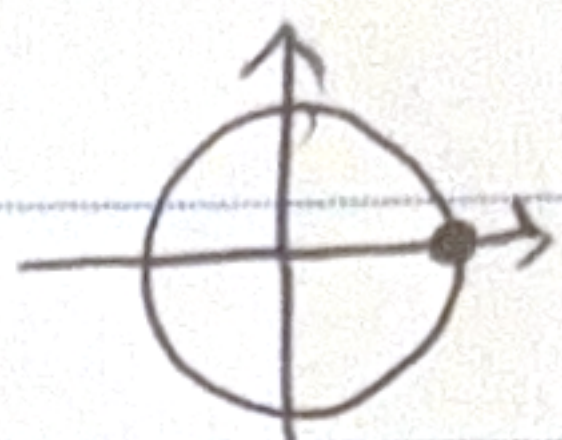
$$\sin u \geq \frac{1}{r}$$



$$\left[r\pi + \frac{\pi}{4}, r\pi + \frac{3\pi}{4} \right]$$

$$y = \sqrt{\cos u - 1}$$

$$\cos u \geq 1$$



$$\rightarrow \{r k i \mid k \in \mathbb{Z}\}$$

$$y = \cos y = |u| - r$$

$$-1 \leq |u| - r \leq 1 \quad r \leq |u| \leq r+1$$

$$y = ar \cos(ru + r + 1)$$

$$ru + r + 1 \leq 1$$

$$u(u+r) \leq 0$$

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

$$[-r, 0]$$

$$-1 \leq ru + r + 1 \leq 1$$

$$-r \leq ru + r \leq 0$$

$$-r \leq u(u+r) \leq 0$$

$$0 \leq ru + r + 1$$

$$(-\infty, -r] \cup [-1, +\infty)$$

$$\begin{array}{c} -r-r \\ + \quad - \quad + \end{array}$$

$$[-r, -r] \cup [r, r]$$

$$[-r, -r] \cup [-1, 0]$$

$$y = \sqrt{r - \log(ru - r)}$$

$$r - \log(ru - r) \geq 0$$

$$\log(ru - r) \leq r$$

$$(ru - r) > 0 \quad u > r$$

$$ru - r \leq 9$$

$$r \leq ru \leq 11$$

$$(r, 11]$$

$$y = \log(ru - r)$$

$$ru - r > 0$$

$$u(ru - 1) > 0$$

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

$$(1, +\infty) \cup (-1, 0)$$

$$\frac{r}{r^u + 1}$$

$$r^u \neq -1$$

$$\mathbb{R}$$

$$\frac{r}{r^u - 1}$$

$$u \neq 0$$

$$r^u \neq +1$$

$$\rightarrow \mathbb{R} - \{0\}$$

$$\frac{r}{r^u - r}$$

$$r^u \neq r$$

$$u \neq \log_r r$$

$$\mathbb{R} - \{\log_r r\}$$

$$\frac{r}{r^u - r}$$

$$r^u \neq r$$

$$u = \log_r r$$

$$\mathbb{R} - \{\log_r r\}$$

$$y = (\gamma n + 1)!$$

$$\begin{aligned} \gamma n + 1 &\in IW \\ n &\in \frac{IW - 1}{\gamma} \end{aligned}$$

$$\left\{ n \mid n = \frac{k-1}{\gamma}, k \in IW \right\}$$

$$y = \left(\frac{\gamma n - \gamma}{\gamma n - \omega} \right)!$$

$$\frac{\gamma n - \gamma}{\gamma n - \omega} \in IW$$

$$\frac{-\omega IW + \gamma}{-\gamma IW + \gamma} = n$$

$$\left\{ n \mid n = \frac{-\omega k + \gamma}{-\gamma k + \gamma}, k \in IW \right\}$$