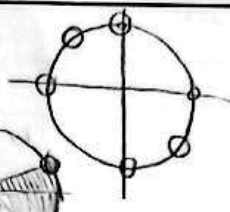
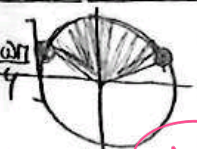


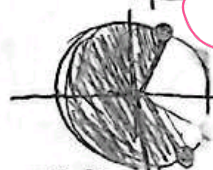
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الف)  $y = \frac{\cot x + 1}{\tan x + 1}$   $D_f = \left\{ \frac{k\pi}{2} - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right\}$  

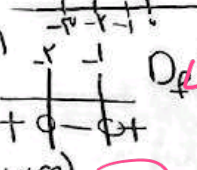
ب)  $y = \sqrt{1 - \varepsilon \sin^2 x}$   $D_f = [k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4}]$   $1 - \varepsilon \sin^2 x \geq 0$   $\varepsilon \sin^2 x \leq 1$   $\sin^2 x \leq \frac{1}{\varepsilon}$   $-\frac{1}{\sqrt{\varepsilon}} \leq \sin x \leq \frac{1}{\sqrt{\varepsilon}}$  

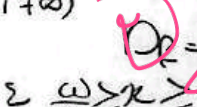
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الف)  $y = \sqrt{2 \sin x - 1}$   $2 \sin x \geq 1$   $\sin x \geq \frac{1}{2}$   $D_f = [k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}]$  

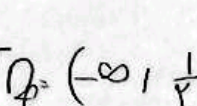
ب)  $y = \sqrt{1 - 2 \cos x}$   $1 - 2 \cos x \geq 0$   $\cos x \leq \frac{1}{2}$   $D_f = [k\pi + \frac{\pi}{3}, k\pi + \frac{5\pi}{3}]$  

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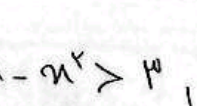
$y = \arcsin(x^2 + 3x + 1)$   $-1 \leq x^2 + 3x + 1 \leq 1$   $x^2 + 3x + 1 \leq 1$   $x^2 + 3x \leq 0$   $x(x + 3) \leq 0$   $x \in [-3, 0]$   $x^2 + 3x + 1 \geq -1$   $x^2 + 3x + 2 \geq 0$   $(x + 1)(x + 2) \geq 0$   $x \in (-\infty, -2] \cup [-1, \infty)$   $D_f = [-3, 0] \cap (-\infty, -2] \cup [-1, \infty) = [-3, -2] \cup [-1, 0]$  

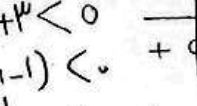
$\cos y = \sqrt{\omega - 2x}$   $0 \leq \sqrt{\omega - 2x} \leq 1$   $0 \leq \omega - 2x \leq 1$   $-\omega \leq 2x \leq -\frac{\omega - 1}{2}$   $\frac{\omega}{2} \geq x \geq -\frac{\omega - 1}{4}$   $D_f = [\frac{\omega}{2}, -\frac{\omega - 1}{4}]$  

الف)  $1 - \log_{\frac{1}{\mu}} x > 0$   $D_f = (-\infty, \mu)$   $\log_{\frac{1}{\mu}} x < 1$   $x < \mu$  

ب)  $1 - \log_{\frac{1}{\mu}} x > 0$   $D_f = (\frac{1}{\mu}, \infty)$   $\log_{\frac{1}{\mu}} x < 1$   $x < \frac{1}{\mu}$  

چون متغیرین در انت مثبت نامساوی معکوس می شود

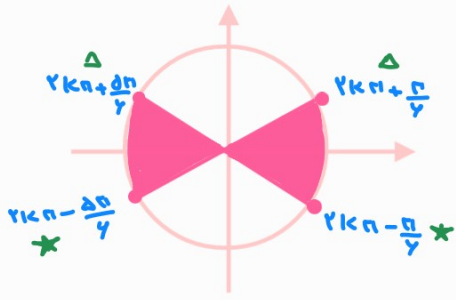
$y = \sqrt{r^n - n^r - 1}$   $r^n - n^r > 1$   $r^n - n^r > 1$   $r^n - n^r > 1$   $r^n - n^r > 1$  

$y = \left( \frac{\mu x + \omega}{r x + \varepsilon} \right)^j$   $\frac{\mu x + \omega}{r x + \varepsilon} \in W$   $(x - \frac{\omega}{\mu})(x - \frac{\varepsilon}{r}) < 0$   $D_f = [1, 3]$  

$r\mu\omega - \mu^2\varepsilon = \omega - r\varepsilon$   $n = \frac{\omega - r\varepsilon}{r\omega - \mu^2}$   $D_f = \left\{ x \mid x = \frac{\omega - r\varepsilon}{r\mu - \mu^2}, \mu \leq \omega \right\}$

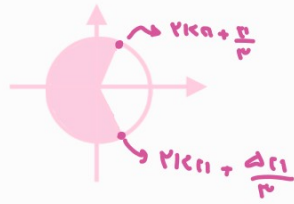


4- ب)  $1 - r \sin^2 n \geq 0 \rightarrow r \sin^2 n \leq 1 \rightarrow \sin^2 n \leq \frac{1}{r} \rightarrow -\frac{1}{r} \leq \sin n \leq \frac{1}{r}$



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

5- ب)  $1 - r \cos^2 n \geq 0 \rightarrow \cos^2 n \leq \frac{1}{r}$



$\rightarrow D_f = [k\pi + \frac{\pi}{r}, k\pi + \frac{3\pi}{r}]$

9- الف)  $y = \log_r (1 - \log_r^n)$   $\rightarrow \log_r^n \rightarrow n > 0$   
 $\hookrightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1 \rightarrow n < r$

$D_f = (0, r)$

9- ب)  $y = \log_r (1 - \log_{\frac{1}{r}}^n)$   $\rightarrow \log_{\frac{1}{r}}^n \rightarrow n > 0$   
 $\hookrightarrow 1 - \log_{\frac{1}{r}}^n > 0 \rightarrow \log_{\frac{1}{r}}^n < 1 \xrightarrow{\text{مباين (1,0)}} n > \frac{1}{r}$

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

ج- ۵  $\left[ n - \frac{1}{r} \right] + \left[ -n + \frac{1}{r} \right] \geq 0$

میدانیم:

$[n] + [-n]$

|                                       |      |
|---------------------------------------|------|
| $\hookrightarrow n \in \mathbb{Z}$    | ۰ ✓  |
| $\hookrightarrow n \notin \mathbb{Z}$ | -1 ✗ |

$\rightarrow \left[ n - \frac{1}{r} \right] \in \mathbb{Z} \rightarrow n \in \mathbb{Z} + \frac{1}{r}$

$D \neq \emptyset = \left\{ n \mid n = k + \frac{1}{r}, k \in \mathbb{Z} \right\}$