

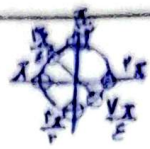
$$n \in \mathbb{Z}_+ \setminus \{1\}$$

$\sin \phi = \frac{\cos x + 1}{\tan x + 1} = \frac{\cos x + 1}{\frac{\sin x}{\cos x}} = \frac{(\cos x + 1) \cos x}{\sin x}$
 $\sin x \neq 0$
 $\cos x \neq 0$
 $\tan x \neq -1$

$D_f = \mathbb{R} - \left\{ \frac{k\pi}{r}, k\pi - \frac{\pi}{\epsilon} \right\}$

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

$y = \sqrt{1 - \epsilon \sin x}$
 $1 - \epsilon \sin x \geq 0$
 $\epsilon \sin x \leq 1$
 $\sin x \leq \frac{1}{\epsilon}$
 $|\sin x| \leq \frac{1}{\epsilon}$



$(-r) \sqrt{1 - \sin x} - 1$
 $r \sin x - 1 \geq 0$
 $r \sin x \geq 1$
 $\sin x \geq \frac{1}{r}$



$D_f = \left[r k \pi + \frac{\pi}{r}, r k \pi + \frac{\pi}{\epsilon} \right]$

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

$y = \sqrt{1 - r \cos x}$
 $1 - r \cos x \geq 0$
 $r \cos x \leq 1$
 $\cos x \leq \frac{1}{r}$



$y = \arcsin(\sin(x + rx)) \Rightarrow \sin y = \sin(x + rx) \Rightarrow -1 \leq \sin(x + rx) \leq 1 \Rightarrow -\frac{\pi}{2} \leq x + rx \leq \frac{\pi}{2}$

$D_f = [-r, -1] \cup [1, r]$

$a + b \Rightarrow \log \frac{1}{x} = -\log x$
 $\log \frac{1}{x} = -\log x$

$y = \arccos(\sqrt{1 - rx})$
 $-1 \leq \sqrt{1 - rx} \leq 1 \Rightarrow -1 \leq 1 - rx \leq 1 \Rightarrow 0 \leq rx \leq 2 \Rightarrow 0 \leq x \leq \frac{2}{r}$

$D_f = [r, \frac{2}{r}]$

$y = \log_r(1 - \log_r x)$
 $1 - \log_r x > 0 \Rightarrow \log_r x < 1 \Rightarrow x < r$

$D_f = (0, r)$

$y = \log_r(1 - \log_r \frac{x}{r})$
 $1 - \log_r \frac{x}{r} > 0 \Rightarrow \log_r \frac{x}{r} < 1 \Rightarrow \frac{x}{r} < r \Rightarrow x < r^2$

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

$y = \sqrt{r^{\epsilon x - x^r} - 1}$
 $r^{\epsilon x - x^r} - 1 \geq 0 \Rightarrow r^{\epsilon x - x^r} \geq 1 \Rightarrow \epsilon x - x^r \geq 0 \Rightarrow x^r \leq \epsilon x \Rightarrow x \leq \frac{\epsilon}{r}$

$D_f = [1, \frac{\epsilon}{r}]$

$\left(\frac{rx+0}{rx+\epsilon} \right)! = c$
 $\frac{rx+0}{rx+\epsilon} \in W$
 $x \in -\frac{\epsilon w - a}{rw - r} \Rightarrow D_f = \left\{ x \mid x = -\frac{\epsilon w - a}{rw - r}, w \in W \right\}$

$rx + 0 \in [rx + \epsilon, \infty) \Rightarrow a - \epsilon w \in [rx + \epsilon, \infty) \Rightarrow 0 - \epsilon w \in [rx + \epsilon, \infty)$
 $x \in -\frac{\epsilon w - a}{rw - r} \Leftrightarrow \frac{a - \epsilon w}{rw - r} \in x$