

$$c) x^2 + 9x + 10 \geq 0 \quad x = -1, -10$$

$$(-\infty, -10] \cup [-1, +\infty)$$

$\frac{x^r - 9n + 0}{x^r - 1} \rightarrow \frac{(x-0)(x-1)}{x^r - 1}$

$y = \sqrt{\frac{a^p - 1}{a^r - a^{r-1}}}$

$\therefore y = \sqrt{x} - \sqrt{x-r} \rightarrow x-r \geq 0 \rightarrow x \geq r$
 $x - \sqrt{x-r} \geq 0 \rightarrow \sqrt{x-r} \leq x \rightarrow x-r \leq x^2 \rightarrow x \leq 11$
 $\text{Def} = [r, 11]$

ا) $y = \sqrt{\epsilon - r^2} \rightarrow \epsilon - r^2 \geq 0 \rightarrow r^2 \leq \epsilon \rightarrow r \leq \sqrt{\epsilon}$
 $Df = [-\sqrt{\epsilon}, \sqrt{\epsilon}]$

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ب) $y = \sqrt{r|a| - 4} \rightarrow r|a| - 4 \geq 0 \rightarrow r|a| \geq 4 \rightarrow |a| \geq \frac{4}{r}$
 $a \leq -\frac{4}{r}, a \geq \frac{4}{r} \quad Df = (-\infty, -\frac{4}{r}] \cup [\frac{4}{r}, +\infty)$

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ا) $y = \sqrt{\frac{|a|+1}{|a|-r}} \rightarrow a \neq \pm r \rightarrow Df = \mathbb{R} - \{-r, +r\}$

ب) $y = \sqrt{\frac{\sqrt{a}+1}{\sqrt{a}-r}} \rightarrow \sqrt{a} - r \neq 0 \rightarrow \sqrt{a} \neq r \rightarrow a \neq r^2, Df = \mathbb{R} - \{r^2\}$

ا) $y = \frac{\sin x}{r \cos x - 1} \rightarrow r \cos x - 1 \neq 0 \rightarrow r \cos x \neq 1 \rightarrow \cos x \neq \frac{1}{r}$
 $Df = \mathbb{R} - \{x | \cos x = \frac{1}{r}\} \subset Df = \mathbb{R} - \{x | x = \pm \arccos \frac{1}{r}\}$

ب) $y = \cos x + 1 \rightarrow r \sin x + 1 \neq 0 \rightarrow r \sin x \neq -1 \rightarrow \sin x \neq -\frac{1}{r}$
 $Df = \mathbb{R} - \{x | \sin x = -\frac{1}{r}\} \subset Df = \mathbb{R} - \{x | x = -\arcsin \frac{1}{r} + 2k\pi\}$
 ج) $y = \tan x + r \rightarrow \frac{\sin}{\cos} \rightarrow \cos \neq 0 \rightarrow \cot x - 1 \neq 0 \rightarrow \cot x \neq 1, Df = \mathbb{R} - \{x | \cot x = 1\}$
 $Df = \mathbb{R} - \{x | x = \frac{\pi}{4} + k\pi\}$

$y = x \frac{1}{\sqrt{r(a-r) - \frac{1}{r}}} \rightarrow r(a-r) - \frac{1}{r} > 0 \rightarrow r(a-r) > \frac{1}{r}$
 $|a-r| > \frac{1}{r} \rightarrow a-r < -\frac{1}{r} \rightarrow a < \frac{r-1}{r}$
 $a-r > \frac{1}{r} \rightarrow a > \frac{r+1}{r}$
 $Df = (-\infty, \frac{r-1}{r}) \cup (\frac{r+1}{r}, +\infty)$

ا) $y = \sqrt{\epsilon - r|a|} \rightarrow \epsilon - r|a| \geq 0 \rightarrow \epsilon \geq r|a| \rightarrow r \geq |a|$
 $-r \leq a \leq r \rightarrow Df = [-r, r]$

ب) $y = \sqrt{\frac{|a|}{|a|}} \rightarrow a \neq 0, Df = \mathbb{R} - \{0\}$