

$y = \log \frac{x-1}{x-2}$ $x-1 > 0 \Rightarrow x > 1$ $x-2 > 0 \Rightarrow x > 2$ $x-2 \neq 0$ $x \neq 2$	$Df = (2, \infty) - \{2\}$	
$y = \log \frac{x^2-1}{x+2}$ $x^2-1 > 0 \Rightarrow x^2 > 1$ $x+2 > 0 \Rightarrow x > -2$ $x \neq -2$ $x \neq -1$ $x \neq 1$	$Df = (-1, 1) - \{-2\}$ $(-2, -1) \cup (1, +\infty) - \{-2\}$	6
$y = \log \frac{x^2-4x+3}{x-2}$ $\frac{(x-1)(x-3)}{x-2}$ $x \neq 2$ $x \neq 1$ $x \neq 3$	$Df = [1, 2) \cup (3, +\infty)$	7
$y = \log \frac{x+2}{x-2}$ $x+2 > 0 \Rightarrow x > -2$ $x-2 > 0 \Rightarrow x > 2$ $x \neq 2$ $x \neq -2$	$Df = (-2, 2) - \{2\}$ $(-2, -2) \cup (2, +\infty) - \{2\}$	8
$y = \sqrt{x - \log_r \frac{x-1}{r}}$ $x-1 > 0 \Rightarrow x > 1$ $x - \log_r \frac{x-1}{r} \geq 0$ $x \geq \log_r \frac{x-1}{r}$ $x \geq 1$ $x \geq 1$	$Df = (1, 1.5]$	9
$y = \log (r \log_r \frac{x}{r} - 1)$ $x > 0$ $r \log_r \frac{x}{r} - 1 \geq 0 \Rightarrow r \log_r \frac{x}{r} \geq 1 \Rightarrow \log_r \frac{x}{r} \geq \frac{1}{r} \Rightarrow x \geq \frac{1}{r^{\frac{1}{r}}} \rightarrow \sqrt{r}$	$Df = [\sqrt{r}, +\infty)$	10
$y = \frac{r}{r^n+1}$ $r^n \neq -1$ $Df = \mathbb{R}$		
$y = \frac{r}{r^n-1}$ $r^n - 1 \neq 0 \Rightarrow r^n \neq 1$ $Df = \mathbb{R} - \{0\}$		
$y = \frac{r}{r^n-2}$ $r^n - 2 \neq 0 \Rightarrow r^n \neq 2$ $n \neq \frac{1}{r}$ $Df = \mathbb{R} - \{\frac{1}{r}\}$		
$y = \frac{r}{r^n-r}$ $r^n - r \neq 0 \Rightarrow r^n \neq r$ $Df = \mathbb{R}$		
$y = (r^n+1)!$ $r^n+1 \in \mathbb{N}$ $r^n \in \mathbb{N}-1 \Rightarrow n \in \frac{\mathbb{N}-1}{r}$	$Df = \{n \mid n \leq \frac{K-1}{r}, K \in \mathbb{N}\}$	
$y = \left(\frac{r^n-2}{r^n-5} \right)!$ $\frac{r^n-2}{r^n-5} \in \mathbb{N}$ $r^n-2 \in \mathbb{N} \Rightarrow r^n \in \mathbb{N}+2$ $r^n-5 \in \mathbb{N} \Rightarrow r^n \in \mathbb{N}+5$ $n \in \frac{r-5\omega}{r-2\omega}$	$Df = \{n \mid n \leq \frac{r-5\omega}{r-2\omega}, K \in \mathbb{N}\}$	11