

$$1) f(x) = \sqrt{(a-r)x^r + a^r x + b}$$

$a-r = -$ $a > r$ $\sqrt{r x + b}$ $b = -r$
 موجب موجب $r x + b \rightarrow$ $r < b = -$

$$2) f(x) = \sqrt{m^r - r x + r - m^r}$$

$$\Delta < 0 \Rightarrow r - \varepsilon(r - m^r) < 0$$

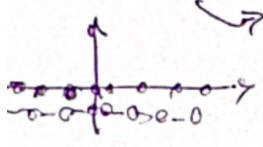
$$1 - (-1) = 2$$

min	max
-1	1

$r m^r - \varepsilon < 0$
 $\varepsilon(m^r - 1) < 0$
 $m^r - 1 \neq 0$
 $m \neq \pm 1$

$$3) \sqrt{f - x^r}$$

$$[x] + [-x] + 1$$



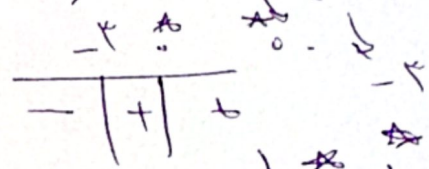
$\rightarrow$ موجب $\Rightarrow \mathbb{Z}$

$f - x^r \geq 0$ $x^r \leq f$
 $-r \leq x^r \leq r$
 $D_f = \{-r, -1, 0, 1, r\}$

$$4) \sqrt{x^r + r x^r}$$

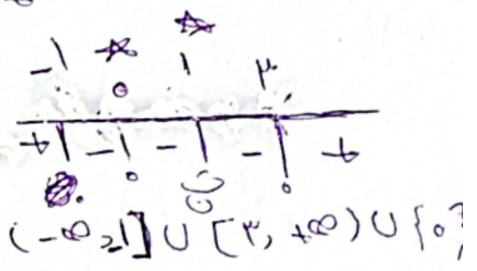
$$D_f = [-r, +\infty)$$

$$x^r + r x^r \geq 0 \Rightarrow x^r(x + r) \geq 0$$



$$5) \sqrt{\frac{(x^r - 1)(x^r - r x^r)}{x^r - 1}}$$

$x^r - 1 \neq 0$
 $x^r \neq \pm 1$
 $x \neq \pm 1$
 $x^r(x - r) \neq 0$
 $x \neq 0$
 $x \neq r$



$$6) الف) y = \sqrt{|x-r| - r}$$

$$|x-r| - r \geq 0$$

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

$|x-r| \geq r$
 $x-r \geq r \Rightarrow x \geq 2r$
 $x-r \leq -r \Rightarrow x \leq 0$

$$ب) y = \sqrt{r - |r - x|}$$

$r - |r - x| \geq 0$
 $|r - x| \leq r \Rightarrow -r \leq r - x \leq r$
 $+r \geq -x \geq -r$
 $D_f = [-r, r]$

$$4) \text{ ا) } y = \sqrt{1 - a|a|}$$

$$1 - a|a| \geq 0 \\ a|a| \leq 1 \Rightarrow D_f = (-\infty, 1]$$

$$ب) y = \frac{1}{\sqrt{r - |a - \theta| - 1}}$$

$$(1) r - |a - \theta| > 1 \quad (2) \sqrt{r - |a - \theta|} \neq 1$$

$$|a - \theta| \leq r$$

$$-r \leq a - \theta \leq r$$

$$-r \leq a \leq r$$

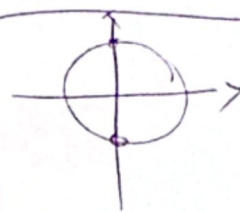
$$(1) \cap (2) \Rightarrow D_f = [-r, r] - \{r, -r\}$$

$$\begin{aligned} r - |a - \theta| &\neq 1 \\ |a - \theta| &\neq r \\ a - \theta &\neq \pm r \\ a &\neq \pm r \end{aligned}$$

$$V) y = \frac{\sin^2 x - 1}{\cos x}$$

$$\cos x \neq 0$$

$$D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{2}\right\}$$

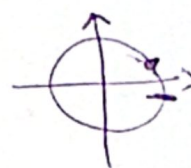


$$ب) y = \frac{\cos x}{r \cos x - 1}$$

$$r \cos x - 1 \neq 0$$

$$\cos x \neq \frac{1}{r}$$

$$D_f = \mathbb{R} - \left\{x \mid k\pi \pm \frac{\pi}{r}\right\}$$



$$1) y = \frac{a + r}{|r a + 1| - |a + r|}$$

$$r|a + 1| \neq |a + r| \quad a \neq r$$

$$r|a + 1| \neq -|a + r| \Rightarrow a \neq -\frac{r}{r}$$

$$|r|a + 1|| \neq |a + r|$$

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

$$ب) y = \sqrt{|r a + 1| - |a + r|}$$

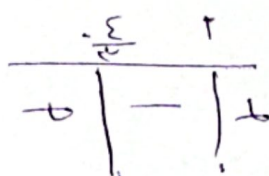
$$|r a + 1| \geq |a + r|$$

$$(r a + 1)^2 \geq (a + r)^2$$

$$\Rightarrow \begin{aligned} \sum a^2 + \sum a + 1 &\geq a^2 + 2ar + r^2 \\ r a^2 - r a - 1 &\geq 0 \end{aligned}$$

$$(r a + 1)(a - r) \geq 0$$

$$D_f = (-\infty, -\frac{r}{r}] \cup [r, +\infty)$$



$$f(x) = \sqrt{\log \log_{a,0} (x-1)}$$

(9)

$$\log_{a,0} \log_{a,0}^{x-1} > .$$

$$x-1 > .$$

$$x > 1$$

$$(1) \quad x > \frac{1}{r}$$

$$\log_a^{x-1} > .$$

$$x-1 > 1$$

$$x > r$$

$$(r) \quad (x > 1)$$

$$(r, +\infty)$$

$$\log_a^{x-1} > 1$$

$$x-1 > 0 \Rightarrow x > 1 \Rightarrow (x) \quad (x > r)$$

10) a) $y = \log(r \cos x + 1)$

$$r \cos x + 1 > . \Rightarrow \cos x > \frac{1}{r}$$



$$D_f = \left[rK\pi + \frac{r\pi}{r}, rK\pi + \frac{2\pi}{r} \right]$$

b) $\sqrt{\log \frac{x-1}{x+1}}$

$$\log \frac{x-1}{x+1} > .$$

$$\frac{x-1}{x+1} > .$$

$$\begin{array}{c|c} -1 & 1 \\ \hline + & - & + \end{array}$$

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

$$\frac{x-1}{x+1} > 1 \Rightarrow \frac{x-1 - (x+1)}{x+1} > 0 \Rightarrow \frac{-2}{x+1} > 0 \Rightarrow x < -1$$

$$D_f = (-\infty, -1)$$