

ب. معادله تالیفات ۲ آریا میسرار لیزه سم صفر

۱)  $rx^r + y^r - rx + ry + k = 0$

$r(x-1)^r + (y+1)^r + (k-11)$

$(k \leq 11)$

۲)  $f(x) = \begin{cases} x^r + rx; x \geq a \\ rx + a + r; x \leq a \end{cases}$   $f(1) = 1$   $1+r = r+a+r \rightarrow a-r = a$   $(a=1)$   
 $\downarrow$  اول  $x=a=1$

۳)  $f(x) = \begin{cases} rx^r - b; |x+1| \geq r \\ a+rx; -r \leq x \leq -1 \end{cases}$   $x = -r$   $a+b = 1$   $r(-r)^r - b = a + r(-r) \Rightarrow 1a + r = a + b$   
 $\downarrow$   $a+b = r \cdot 1$

۴)  $y = \sqrt{4x-a} + \sqrt{b-3x}$   $\frac{b}{a} = ?$   $D = \{r\}$   $\frac{b}{a} = \frac{1}{r}$

$4x - a \geq 0 \rightarrow x \geq \frac{a}{4}$

$\frac{b}{r} = \frac{a}{4} = r \Rightarrow a = 1r, b = r$

$b - 3x \geq 0 \rightarrow x \leq \frac{b}{3}$

۵) الف)  $y = \sqrt{\frac{x+1}{|x-1|}} + \sqrt{\frac{4-x}{x^2+rx+r}}$   $\frac{1}{|x-1|} \geq 0 \Rightarrow |x-1| \neq 0$   $\frac{1}{x-1} + \frac{1}{x-1} + \frac{1}{x-1}$   
 $D_y = (-\infty, -1] \cup (1, +\infty)$

$\frac{4-x}{x^2+rx+r} \geq 0 \Rightarrow x^2 + rx + r \neq 0$   $\frac{4}{x-1}$   
 $D_y = (-\infty, 4] \cup [r, +\infty)$

$I \cap II = (-\infty, -1] \cup (r, 4]$

ب)  $y = \sqrt{[x]-r} + \sqrt{r-[x]}$   
 $r - [x] \geq 0 \rightarrow [x] \leq r \Rightarrow x < r+1 \Rightarrow (-\infty, r+1)$   
 $[x] - r \geq 0 \rightarrow [x] \geq r \Rightarrow x \geq r$   
 $\cap \Rightarrow I \cap II = \emptyset$

۶) الف)  $y = \sqrt{\frac{x^r - x - y}{x^r - 13x^r + 3y}}$   $x^r = A$   $A^r - 13A + 3y \neq 0 \Rightarrow (A-9)(A+3) \neq 0$   
 $A \neq 9 \rightarrow x^r \neq 9 \rightarrow x \neq 3, x \neq -3$   
 $A \neq -3 \rightarrow x^r \neq -3$

صورت  $\rightarrow x^r - x - y \Rightarrow (x-3)(x+3)$   $x=3$   
 $x=-3$

ب)  $y = \sqrt{\frac{x^r - 2x^r - 5x + y}{x^r + 2x^r - 5x - y}}$

$x^r - 2x^r - 5x + y \mid x-1$   
 $x^r - x - y$

صورت  $\rightarrow (x+2)(x-3)(x-1)$   
 $x = -2, 3, 1$

مخرج  $\rightarrow x^r + 2x^r - 5x - y \mid x+1$   
 $x^r + x - y$

مخرج  $\rightarrow (x-1)(x+3)(x+1)$   
 $x = 1, -3, -1$

$D_y = (-\infty, -2) \cup (-3, 2) \cup (3, +\infty)$

$D_y = (-\infty, -2) \cup (-3, -1) \cup (1, 2) \cup (3, +\infty)$

$$v) \text{ الف) } y = \sqrt{[-x] - r} \quad [-x] - r \geq 0 \Rightarrow [-x] \geq r \quad Dy = \emptyset$$

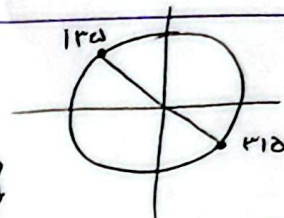
$$b) y = \frac{\omega x^r + r}{[x]^r - r[x] - r} \quad \boxed{Dy = R - \{-1\}}$$

$$[x]^r - r[x] - r \neq 0$$

$$x^r - rx - r \neq 0 \quad \frac{(x+1)(x-r)}{-1 \quad r}$$

$$n) \text{ الف) } y = \frac{\cot x + 1}{\tan x + 1} \quad \tan x + 1 \neq 0 \rightarrow \tan x \neq -1$$

$$Dy = R - \{k\pi - \frac{\pi}{2}\} \quad \perp \quad Dy = R - \{2k\pi - \frac{r\pi}{2}, 2k\pi - \frac{v\pi}{2}\}$$



$$b) y = \sqrt{1 - r \sin^2 x} \geq 0$$

$$\frac{1}{2} \geq \frac{r \sin^2 x}{2} \rightarrow -\frac{1}{\sqrt{r}} \leq \sin x \leq \frac{1}{\sqrt{r}}$$

$$\text{Sol: } Dy = [k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2}]$$

$$Dy = \{x/x \in [-\frac{\pi}{2} + 2k\pi, \frac{\pi}{2} + 2k\pi] \cup [\frac{3\pi}{2} + 2k\pi, \frac{5\pi}{2} + 2k\pi] \mid k \in \mathbb{Z}\}$$



$$q) \text{ الف) } y = \sqrt{1 - \log_k^{x-1}} \Rightarrow 1 - \log_k^{x-1} \geq 0 \Rightarrow \log_k^{x-1} \leq 1 \Rightarrow x-1 \geq \frac{1}{k} \Rightarrow$$

$$\textcircled{1} \rightarrow x-1 > 0 \rightarrow \textcircled{x > 1}$$

$$\boxed{Dy = x > \frac{r}{f}}$$

$$x \geq \frac{1}{f} + \frac{r}{f} \Rightarrow \boxed{x \geq \frac{r+1}{f}}$$

$$b) y = \frac{\sqrt{x^r - x}}{1 - \log_k^{x^r - rx}}$$

$$x^r - x \geq 0 \Rightarrow \frac{x}{x^r - x} \geq 0 \Rightarrow \begin{cases} x \leq 0 \\ x \geq 1 \end{cases}$$

$$Dy = (-\infty, 0) \cup (r, +\infty) - \{1, r\}$$

$$1 - \log_k^{x^r - rx} \neq 0 \Rightarrow \log_k^{x^r - rx} \neq 1 \Rightarrow x^r - rx \neq k \Rightarrow x^r - rx - k \neq 0 \Rightarrow \begin{cases} x \neq -1 \\ x \neq k \end{cases}$$

$$x^r - rx > 0 \rightarrow \frac{x}{x^r - rx} > 0 \Rightarrow (-\infty, 0) \cup (r, +\infty) \text{ مع } x < 0, x > r$$

$$10) \text{ الف) } y = \sqrt{\frac{rx - x^r}{r - 1}} \geq 0$$

$$\boxed{Dy = [6, r]}$$

$$rx - x^r \geq 0 \rightarrow rx - x^r \geq r \Rightarrow -x^r + rx - r \geq 0 \Rightarrow \frac{1}{-1} + \frac{r}{r} - \frac{r}{-1} \geq 0$$

$$b) y = \left( \frac{rx + \omega}{rx + \varepsilon} \right) \quad \frac{rx + \omega}{rx + \varepsilon} \in W \Rightarrow rx + \omega = rxw + rw \Rightarrow rx - rxw = rw - \omega \Rightarrow x(r - rw) = rw - \omega \Rightarrow$$

$$x = \frac{rw - \omega}{r - rw}$$

$$\boxed{Dy = \{x/x = \frac{rk - \omega}{r - rk}, k \in W\}}$$