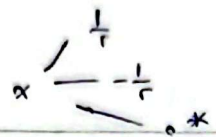




$$f(x) = \sqrt{r - \frac{1}{x^r}}$$

$$\hookrightarrow r - \frac{1}{x^r} \geq 0 \Rightarrow \frac{r x^r - 1}{x^r} \geq 0$$



$$\frac{-\frac{1}{r} \quad 0 \quad \frac{1}{r}}{+ \quad | \quad - \quad | \quad +} + (-\infty, -\frac{1}{r}] \cup [\frac{1}{r}, +\infty)$$

$m x^r + r m x + 1$   $\xrightarrow{\text{تفاضل باشد}}$   $m > 0$

$\Delta < 0 \Rightarrow f m^r - f m < 0$   
 $f m(m-1) < 0$

$\frac{+}{-} \frac{-}{+} + \Rightarrow 0 < m < 1$

$a = 0 < m < 1$

$\frac{(rx-1)(rx+1)}{(rx-1)} = rx+1$

$g(\frac{1}{r}) = r \times \frac{1}{r} + 1 = r$

$r \times \frac{1}{r} + k = r \Rightarrow k = 0$

$\Rightarrow 0 + \frac{1}{r} = \frac{1}{r}$

$$f(x) = \begin{cases} \frac{rx^r - 1}{rx - 1} = x \neq \frac{1}{r} \\ rx + k, x = \frac{1}{r} \end{cases}$$

$\frac{rx^r - \varepsilon}{rx + r} = \frac{(rx - r)(rx + r)}{(rx + r)} = rx - r \Rightarrow b = -r$

$g(x) = rx - r \Rightarrow g(-\frac{r}{\varepsilon}) = -\varepsilon$

$f(-\frac{r}{\varepsilon}) = -ra + r = -\varepsilon \Rightarrow -ra = -\varepsilon$   
 $a = \frac{\varepsilon}{r}$

$a - b = 0$

$g(r) = r + r = \varepsilon$

$f(r) = ra^r + ra$

$ra^r + ra = \varepsilon \Rightarrow ra^r + ra - \varepsilon = 0$   
 $\div r \Rightarrow a^r + a - \frac{\varepsilon}{r} = 0$   
 $(a+r)(a-1) = 0$

$\Rightarrow$   $\begin{cases} 1 \\ -r \end{cases}$