

سبباً و چون دوازدهم سبباً و چون ۹۵۷

$$\sqrt{\lambda^p + \lambda} \quad \text{---} \quad \sqrt{-\lambda^p + \lambda}$$

0

$$Df = \begin{matrix} 0 < \lambda < 1 \\ \lambda > 1 \end{matrix}$$

$$f'(\lambda) \leq \frac{-p\lambda + 1}{\sqrt{-\lambda^p + \lambda}} \rightarrow \lambda \leq \frac{1}{p} \quad \lambda > 0$$

$$\frac{p\lambda + 1}{\sqrt{\lambda^p + \lambda}} \rightarrow \lambda \leq \frac{1}{p} \quad \lambda < 0$$

$$f(\lambda) \rightarrow \begin{matrix} + & | & - \\ & \frac{1}{p} & \end{matrix}$$

max

min \rightarrow زیاد
 $\lambda \leq \frac{1}{p} \geq \pm 1, 0$ \rightarrow بحرانی

$$f'(\lambda) \leq \frac{1}{p\sqrt{\lambda}} - \frac{1}{\sqrt{a-p\lambda}} \leq \frac{\sqrt{a-p\lambda} - p\sqrt{\lambda}}{p\sqrt{\lambda}\sqrt{a-p\lambda}}$$

$$\begin{aligned} \sqrt{a-p\lambda} &= p\sqrt{\lambda} \\ a-p\lambda &= a-p^2\lambda \Rightarrow \lambda = \frac{a}{p^2} \end{aligned}$$

$$f\left(\frac{a}{p^2}\right) \leq \sqrt{\frac{a}{p^2}} + 0 \leq \frac{\sqrt{a}}{p} \quad \text{min}$$

$$f(0) \leq \sqrt{a}$$

$$f\left(\frac{a}{p^2}\right) = \sqrt{\frac{a}{p^2}} + \sqrt{\frac{pa}{p^2}} \leq \underbrace{\frac{\sqrt{a}}{p}}_{\text{max}}$$

$$p\sqrt{\frac{a}{p^2}} \sqrt{\frac{a}{p^2}} = \sqrt{pa} \rightarrow$$

$$9\frac{a^p}{p^p} = 1p \rightarrow a \leq \pm \sqrt[p]{p}$$

$$a = \sqrt[p]{p} \Rightarrow [a] = \sqrt[p]{p}$$

-u

$$f(x) = \frac{-x^{\mu} + \mu x^{\mu-1}}{x^{\mu}-1} = \frac{x^{\mu}(x-1)}{x^{\mu}-1}$$

$$= \frac{-x^{\mu} + \mu x^{\mu-1}}{x^{\mu}-1}$$

$$f'(x) = \frac{(x^{\mu}-1)^{\mu} (\mu x^{\mu-1} - \mu x^{\mu})}{(x^{\mu}-1)^{2\mu}}$$

$$= \frac{\mu x^{\mu-1} - \mu x^{\mu}}{(x^{\mu}-1)^{\mu}}$$

$y' = \mu a x^{\mu-1} + \mu b x^{\mu-2} + c \rightarrow$

$y(0) = 0 \rightarrow c = 0$

$y'(1) = 0 \rightarrow \mu a + \mu b = 0$

$f(1) = 1 \rightarrow a + b + c + d = 1 \rightarrow a + b = 1$

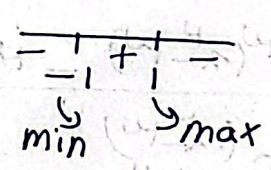
$f(0) = 0 \rightarrow d = 0$

$a = -b \rightarrow a = -1, b = 1$

-r

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

$f(x) = \frac{x^{\mu} - \mu x^{\mu-1}}{x^{\mu}-1} = 0 \rightarrow x^{\mu} = \mu x^{\mu-1}$



$\frac{x^{\mu}-1}{x^{\mu}-1} = 1$

-a

$$-x^{\mu} + \mu a x^{\mu-1} + b$$

$y' = \mu a x^{\mu-1} + 4a x^{\mu-2}$

$-\mu a x^{\mu-1} + 4a x^{\mu-2} = 0$

$-\mu a x^{\mu-1} + 4a x^{\mu-2} = 0 \rightarrow a x^{\mu-1} = \frac{4}{\mu} x^{\mu-2}$

$f(-1) = 1 - \frac{\mu}{\mu} + b = 1 - 1 + b = b$

$\frac{b}{a} = -1$

$y' = \mu a x^{\mu-1} + b \rightarrow x^{\mu} = \frac{1}{\mu} + \frac{b}{\mu}$

$\frac{\mu}{\mu} \times \frac{1}{\mu} = \frac{1}{\mu} + \frac{b}{\mu} \rightarrow \frac{1}{\mu} = \frac{1}{\mu} + \frac{b}{\mu}$

$y = \frac{\mu a x^{\mu} + b x^{\mu}}{\mu a + 1} = 0 \rightarrow x^{\mu} = -\frac{b}{\mu a}$

-v

$$f(x) = \frac{x^2}{x^2 + a^2 + 1}$$

فما نحتاجه $\rightarrow \frac{b}{a} = \mu \rightarrow b < a$ - 1

فما نحتاجه (المعروف) $\rightarrow \frac{b}{a} = \mu$

$$f'(x) = \frac{f(x)^\mu (x-1) - \mu x^\mu (x^x)}{(x-1)^\mu} = \frac{x^4 - \mu x^\mu - \mu x^4}{(x-1)^\mu} \xrightarrow{x=0} \frac{x^4 - \mu x^\mu}{(x-1)^\mu}$$

البيانات $\rightarrow [0, \mu] \rightarrow$ ص 1

$(\mu, \sqrt{\mu\mu})$ ص 2 $(\sqrt{\mu\mu}, \mu)$

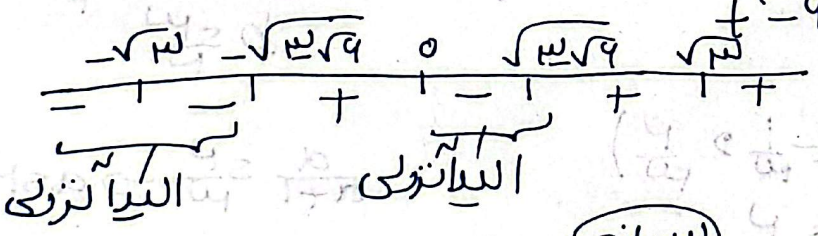
$$f'(x) = \frac{f(x)^\mu (x-\mu) - \mu x (x^x - \mu)}{(x-\mu)^\mu} = \frac{x^\omega - \mu x^\mu - \mu x^\omega + 4x}{(x-\mu)^\mu}$$

$$= \frac{\mu x^\omega - \mu x^\mu + 4x}{(x-\mu)^\mu}$$

$\mu < \sqrt{\mu}$
 $\mu < \sqrt{\mu}$

$$x^x - 4x^\mu + \mu = 0 \Rightarrow x^\mu = 4x - \mu$$

$$t^2 - 4t + \mu = 0 \quad \frac{4 \pm \sqrt{16-4\mu}}{2} = \mu \pm \sqrt{4-\mu}$$



ص 3

$$\mu < \sqrt{\mu + \sqrt{4}} \times - \sqrt{\mu + \sqrt{4}}$$

$$\mu < \sqrt{\mu + \sqrt{4}} \quad \mu = -\sqrt{\mu - \sqrt{4}}$$