



$f(-1) = 1 + \mu a + b = 0 \xrightarrow{a = \frac{1}{\mu}} b = -\frac{\mu}{\mu} = -1$   
 $f'(x) = \mu x^{\mu-1} + \mu a x^{\mu-1} = 0 \xrightarrow{x = -1} \mu(-1)^{\mu-1} + \mu a (-1)^{\mu-1} = 0$   
 $\Rightarrow a = -1$

$y = \frac{1}{\mu} x^{\mu} + a x + b \rightarrow x = \frac{1}{\mu} y \Rightarrow x = \frac{1}{\mu} y$   
 $f(x) = \frac{1}{\mu} (\frac{1}{\mu} y)^{\mu} + a \cdot \frac{1}{\mu} y + b = 0$   
 $\Rightarrow \frac{1}{\mu^2} y^{\mu} + \frac{a}{\mu} y + b = 0$   
 $\Rightarrow y^{\mu} + \mu a y + \mu b = 0$   
 $\Rightarrow y = -\mu a = 1 \Rightarrow a = -\frac{1}{\mu}$

جانب قائم:  $x = \frac{1}{\mu} \Rightarrow 1 + \frac{1}{\mu} a + b = 0 \rightarrow a = -\mu(1+b)$   
 جانب افقی:  $y = \frac{b}{\mu} = 1 \rightarrow b = \mu$   
 $\frac{b}{a} = \frac{\mu}{-\mu(1+\mu)} = -\frac{1}{1+\mu}$

$f'(x) = \frac{\sum x^{\mu} (\mu x^{\mu-1}) - \mu x^{\mu} (\mu x^{\mu-1})}{(\mu x^{\mu-1})^2} = \frac{\mu x^{2\mu} - \mu^2 x^{2\mu}}{\mu^2 x^{2\mu-2}} = \frac{\mu x^{2\mu} (1 - \mu)}{\mu^2 x^{2\mu-2}} = \frac{x^{2\mu} (1 - \mu)}{\mu x^{2\mu-2}}$   
 $x = \sqrt[2\mu]{\frac{\mu}{1-\mu}}$   
 طول قوس =  $\sqrt[3]{32} - 2$

$f(x) = \frac{\sum x^{\mu} (\mu x^{\mu-1}) - (\mu x^{\mu}) (\mu x^{\mu-1})}{(\mu x^{\mu-1})^2} = \frac{\mu x^{2\mu} - \mu^2 x^{2\mu}}{\mu^2 x^{2\mu-2}} = \frac{\mu x^{2\mu} (1 - \mu)}{\mu^2 x^{2\mu-2}} = \frac{x^{2\mu} (1 - \mu)}{\mu x^{2\mu-2}}$   
 $\Rightarrow \frac{1 - \mu}{\mu} x^2 = 1 \Rightarrow x = \pm \sqrt{\frac{\mu}{1-\mu}}$

(۳) بازه نزولی است

x	$-\sqrt{\frac{\mu}{1-\mu}}$	$-\sqrt{\frac{\mu}{1-\mu}}$	0	$\sqrt{\frac{\mu}{1-\mu}}$	$\sqrt{\frac{\mu}{1-\mu}}$	$\sqrt{\frac{\mu}{1-\mu}}$	$\sqrt{\frac{\mu}{1-\mu}}$
f'(x)	+	+	0	-	-	-	-
f(x)	↗	↗	↘	↘	↘	↘	↘