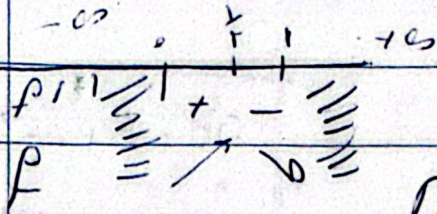


$$f(x) = \begin{cases} \sqrt{x-u^2} & x > u \\ \sqrt{x+u^2} & x < -u \end{cases} \quad f(u) = \begin{cases} \sqrt{1-2u} & u > 0 \\ \sqrt{1+2u} & u < 0 \end{cases}$$



لـ $\sqrt{1+2u}$
 فـ $f'(u) = -\frac{1}{2}$

$$Df = (-\infty, 1] \cup [0, +\infty)$$

max $\rightarrow m=1$
 $n=$

$$\epsilon = 1 \quad (1 \pm 0.1 = 0.9 \text{ و } 1.1)$$

$$1 + \epsilon = 1.1$$

$$y = \sqrt{x} + \sqrt{a-2x}$$

أما إذا كانت $a > 0$ بالحدود كجانبين بالبرهان ثم نبحث عن max و min

$$x=0 \quad y = \sqrt{a} \quad x = \frac{a}{2} \quad y = \sqrt{\frac{a}{2}}$$

نرى أنه $x = \frac{a}{2}$

$$y' = \frac{1}{2\sqrt{x}} - \frac{1}{\sqrt{a-2x}} = 0 \quad \frac{1}{2\sqrt{x}} = \frac{1}{\sqrt{a-2x}} \quad x = a-2x \quad x = \frac{a}{3}$$

$$y = \sqrt{\frac{a}{3}} + \sqrt{\frac{2a}{3}} \quad x = \frac{a}{3}$$

$$\sqrt{\frac{a}{3}} + \sqrt{\frac{2a}{3}} = \sqrt{\frac{3a}{3}} = \sqrt{a}$$

$$a = \epsilon$$

$$[a] = \epsilon$$

$$f(x) = \frac{x^r}{x^r - 1} \quad |x^r - 1| \quad \text{نسبة كسرية بسيطة}$$

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$$f(x) = \frac{x^r}{x^r - 1} \quad (x^r - 1) \rightarrow f'(x) = \frac{-(x^r)(x^r - 1) + x^r(x^r - 1)}{(x^r - 1)^2}$$

$$\frac{-x^r}{(x^r - 1)^2} \times (x^r - 1) + (x^r) \left(\frac{x^r}{x^r - 1} \right) = 0 \quad x^r - 1 = x^r - x^r$$

$$x^r - x^r + 1 = 0$$

$y = au^r + bu^r + cu + d$ $A(0, \dots)$ $B(1, 1)$ (6)

$y' = a^r u^{r-1} + r b u^{r-1} + c$

$0 = a^r(1) + r b(1)$

$ra + rb = 0$ $\rightarrow a + b = 1$

$\frac{ra}{r} + rb + a = 0$ $\rightarrow a = -r$ $\boxed{b = r}$

$ab = r \cdot r = -7$

$f(x) = x |r - x|$ (7)

$\sqrt{r} \rightarrow 0$

$-\frac{r}{r} \rightarrow -\frac{r}{r} \left(\frac{r - \frac{r}{2}}{2} \right) = -\frac{r}{2}$

min

$f(x) = rx - x^2$

$f'(x) = r - 2x = 0 \Rightarrow x = \frac{r}{2}$

$y = -\frac{r}{2}$

$y'(-1) = 0 \Rightarrow -r u^r + r a u = 0$ (7)

$-r - r a = 0$

$\boxed{a = -\frac{1}{r}}$

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

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

$\boxed{b = -\frac{1}{r}}$

$y = \frac{r}{r} u^r + u + \frac{d}{r}$ min $\left\{ \frac{-b}{2a} = \frac{-\frac{1}{r}}{\frac{r}{r}} = -\frac{1}{r} \right\}$ (8)

$\frac{au+r}{a} \Rightarrow a = \dots$

$(a+1)u + (a-1)$

$\frac{r}{k-1}$

$y = \frac{r}{k-1}$

صورت
مقلوب

$$\frac{b}{\varepsilon} = r \quad b = 1r \quad f(x + \frac{1}{r})^r \quad \textcircled{7}$$

$$a = \varepsilon \quad r = r u^r + r u + 1 \varepsilon^r \quad \frac{b}{a} = \frac{1r}{\varepsilon} = r$$

$$f(x) = \frac{x^r}{x^r - 1} \rightarrow f'(x) = \frac{r x^{r-1} (x^r - 1) - (x^r) (r x^{r-1})}{(x^r - 1)^2} = \dots \quad \textcircled{9}$$

$$\frac{x^r - r x^{r-1}}{(x^r - 1)^2} = \frac{x^{r-1} (x^r - r)}{(x^r - 1)^2}$$

کوتاه کردن $\sqrt[r]{r}$

$$f(x) = \frac{x^r - r}{x^r - r} \rightarrow \frac{r x^{r-1} (x^r - r) - (x^r - r) (r x^{r-1})}{(x^r - r)^2} = \dots \quad \textcircled{10}$$

$$\frac{r x - 1r x^r + r}{(x^r - r)^2} = \frac{r x (x^r - r x^r + 1)}{(x^r - r)^2}$$

$$\frac{4 \pm \sqrt{r^2 - 1}}{r}$$

کوتاه کردن