

Subject... Calculus

Day... Month... Year...

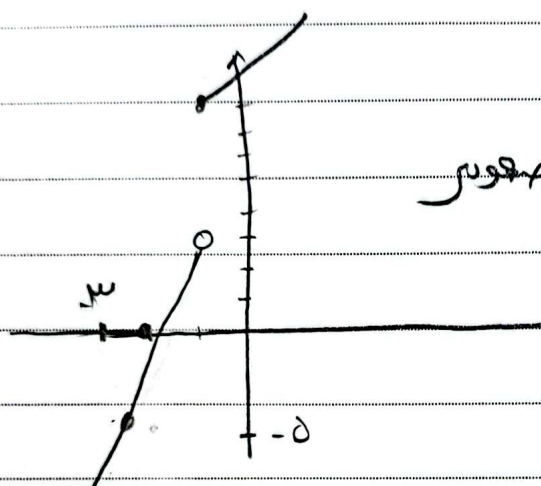
$$\sqrt{f(x) - f(x+1)}$$

$$f(x-x), f(x+1)$$

$$x-x, x+1 \Rightarrow x \leq 1$$

$$f(x+r) = \begin{cases} x+\delta & x > 1 \\ x-1 & x \leq 1 \end{cases}$$

$$f(x) = \begin{cases} x(x+r)+\delta & x+r > 1 \\ x & x+r \leq 1 \end{cases}$$



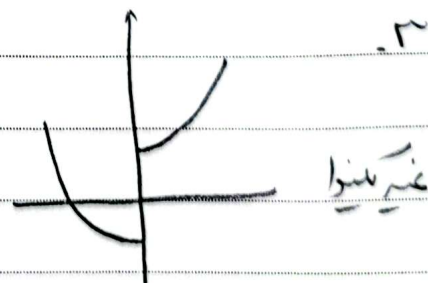
$$f(x) = (x^r + x)^r$$

$$\text{If } f(x) < f(x^r) \Rightarrow f(x) < x^r \Rightarrow (x^r + x)^r < x^r \Rightarrow x^r + x < x \Rightarrow x^r < 0 \Rightarrow x < 0$$

$$y = |x| \left(x^r + \frac{1}{x} \right)$$

$$x > 0 \quad x^r + 1$$

$$x < 0 \quad -x^r - 1$$



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$$\frac{2x+1}{|x|-|x+1|}$$

$$|x|-|x+1|$$

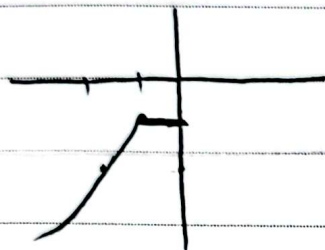
-1	0
$-x+x+1$	$-x-x-1$
1	$-2x-1$
	-1

$$\frac{2x}{\dots}$$

$$\frac{2x+1}{-2x-1}$$

$$\frac{2x+1}{-1}$$

$$\frac{2x+1}{-1} = -2x-1$$

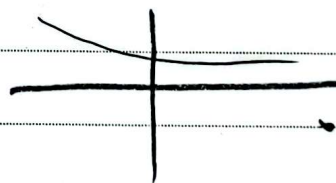
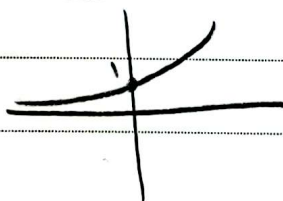


$$(-\infty, a]$$

$$a=0 \quad a, k, \max$$

-a

$$(a^2-3)^x$$



$$0 < a < 1$$

$$a^2-3 > 1 \Rightarrow a^2 > 4 \Rightarrow a > 2 \vee a < -2$$

$$a^2-3 < 1 \Rightarrow a^2 < 4 \Rightarrow -2 < a < 2$$

$$f(x) = x^2 + ax^2 + bx + c$$

$$a=1$$

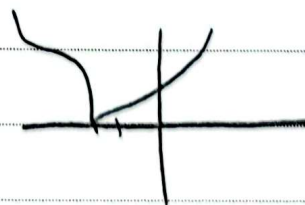
$$a(x+3)^k - 1$$

$$x^2 + 2x + 2x^2 + 9x - 1$$

$$(x+3)^k - 1 = 0 \Rightarrow (x+3)^k = 1$$

$$x+3=1$$

$$x=-2$$



$$(k > +\infty)$$

$$k=-2$$

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$$\sqrt[3]{9\cos^2 t - 1} - \sqrt[3]{1 - 9\cos^2 t} \quad 9$$

$$0 < \cos^2 t < 1 \Rightarrow 0 < 9\cos^2 t < 9 \Rightarrow -1 < 9\cos^2 t - 1 < 8 \Rightarrow -1 < \sqrt[3]{9\cos^2 t - 1} < 2$$

$$\sqrt[3]{9\cos^2 t - 1} = t$$

$$f(t) = r^t - r^{-t} \quad -1 < t < 1 \Rightarrow \left[-\frac{\pi}{2}, \frac{10}{2}\right]$$

صاف
نزول

$$b - a = \frac{10}{2} + \frac{\pi}{2} = \frac{\pi}{2}$$