

$$\sqrt{f(3-x)-f(x+1)}$$

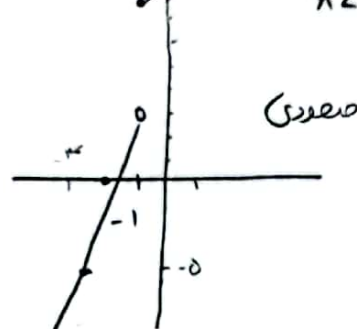
$$f(3-x) \geq f(x+1) \rightarrow 3-x \geq x+1$$

$$2x \leq 2 \quad (x \leq 1)$$

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تالیف 1

$$f(x+2) = \begin{cases} 3x+0 & x \geq 1 \\ x-1 & x < 1 \end{cases}$$

$$f(x) = \begin{cases} 3(x+2)+0 & x+2 \geq 1 \\ f(x+2)-1 & x+2 < 1 \end{cases}$$



$$f(x) = (x^3 + x)^3 \quad \text{معدی}$$

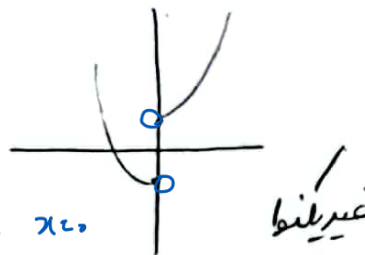
$$f(x) < f(x^3) \quad f(x) < x^3 \quad (x^3 + x)^3 < x^3 \quad x^3 + x < x \quad x^3 < 0 \quad (x < 0)$$

$$y = |x|(x^2 + \frac{1}{x}) \rightarrow x > 0 \quad x^3 + 1$$

$$x < 0 \quad -x^3 - 1$$

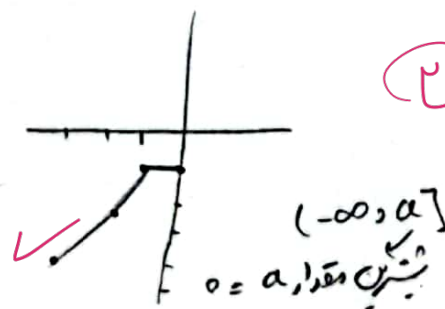
ارفاق

در دامنه نیست



$$\frac{2x+1}{|x|-|x+1|} \quad \begin{array}{ccc} -1 & 0 & \\ -x+x+1 & -x-x-1 & x-x-1 \\ 1 & -2x-1 & -1 \end{array}$$

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

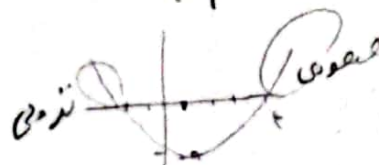


$$\log_{\frac{1}{p}}(x^2-2x-1)$$

$$x^2-2x-1 > 0 \quad (x-1)(x+2) > 0$$

$$\begin{array}{ccc} -2 & 1 & \\ + & - & + \end{array}$$

$$x > 1 \quad \log_p \quad \text{معدی}$$



$$x < -2 \quad x^2-2x-1 > 0 \quad \text{معدی}$$

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



1, 5

$$a^2 - 3 > 1 \quad a^2 > 4 \quad (الف)$$

$$a > 2 \vee a < -2$$

صورتی تواند داشت نیز باشد $a^2 - 3 \geq 1 \quad a^2 \geq 4$ (ب)

$a^2 - 3 = 0 \rightarrow a = \pm \sqrt{3}$ $a \geq 2 \vee a \leq -2$

$$f(x) = x^3 + ax^2 + bx + c$$



$$a = 1$$

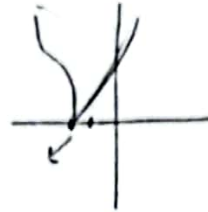
$$a(x+3)^3 - 1$$

$$x^3 + 27 + 42x^2 + 9x - 1$$

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

$$x+3 = 1$$

$$x = -2$$



$$(K, +\infty) \quad K = -2$$

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$$x + \sqrt{x-2}$$

صورتی است که این را معادله می دهیم



$$f \circ f(x) \leq f(\sqrt{x}) \quad f(x) \leq \sqrt{x}$$

$$D_{f \circ f} \rightarrow f(x) \in D_f$$

$$x + \sqrt{x-2} \geq 0 \quad (\sqrt{x+2})(\sqrt{x-1}) \geq 0$$

$$x + \sqrt{x-2} \leq \sqrt{x} \quad x \geq 0$$

$$x - 2 \leq 0 \quad x \leq 2$$

$$\sqrt{x} - x \geq 0 \quad x \geq 0$$

$$1 \leq x \leq 2$$

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

$n \geq 1$

$$0 \leq \cos^2 \leq 1 \quad 0 \leq 9\cos^2 \leq 9 \quad -1 \leq 9\cos^2 - 1 \leq 8 \quad -1 \leq \sqrt[3]{9\cos^2 - 1} \leq 2$$

$$\sqrt[3]{9\cos^2 - 1} = 6$$

$$f(t) = \frac{t}{2} - \frac{t}{2} \quad -1 \leq t \leq 2 \rightarrow \left[-\frac{1}{2}, \frac{1}{2}\right] \quad b-a = \frac{1}{2} + \frac{1}{2} \rightarrow \frac{1}{2}$$

صورتی

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$$0 \leq 0 < 1 - 2 \rightarrow -2 \leq 0 < -1$$

$$F(x) = x - [x+2] \quad x - [x] + 2$$

$$g(x) = \frac{x^n - x^{-n}}{2} \quad \frac{x^{-n} - x^n}{2} = -\frac{10}{n}$$

$$g \circ f \rightarrow \frac{x^{-1} - x^1}{2} = -\frac{2}{2} = -1$$

$$\left[-\frac{10}{n}, -\frac{n}{2}\right]$$

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