

دائرة هم نصف دائرة

نصف دائرة

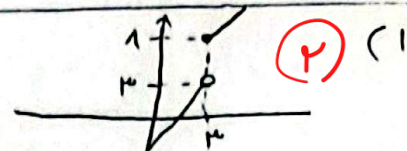
نصف دائرة

$$f(x+r) = \begin{cases} x+r & x > 1 \\ x-1 & x < 1 \end{cases} \rightarrow f(x) = \begin{cases} x-1 & x > 1 \\ x+1 & x < 1 \end{cases} \rightarrow \text{مصفوفة}$$

$$x+r=t \rightarrow x=t-r \rightarrow x+r+1 = t-r+1 = t-1 \rightarrow x > 1 \rightarrow t-r > 1 \rightarrow t > r+1$$

$$x-1 = t-r-1 = t-r-1 \rightarrow x < 1 \rightarrow t-r < 1 \rightarrow t < r+1$$

$$y = \sqrt{f(1-x) - f(x+1)} \rightarrow f(1-x) - f(x+1) \geq 0 \rightarrow f(1-x) \geq f(x+1) \rightarrow 1-x \geq x+1 \rightarrow x \leq 0 \rightarrow D_f = (-\infty, 0] \checkmark$$

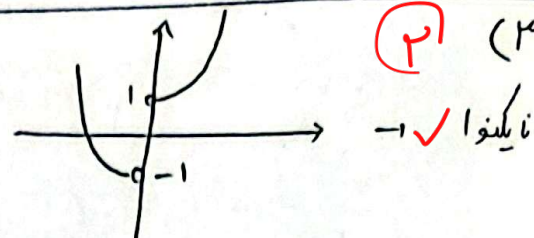


$$f(x) = (x^2+x)^2 \rightarrow \text{مصفوفة}$$

$$f \circ f(x) < f(x^2) \rightarrow f(x) < x^2 \rightarrow (x^2+x)^2 < x^2 \rightarrow x^2+x < x \rightarrow x^2 < 0 \rightarrow x < 0 \rightarrow x \in (-\infty, 0) \checkmark$$

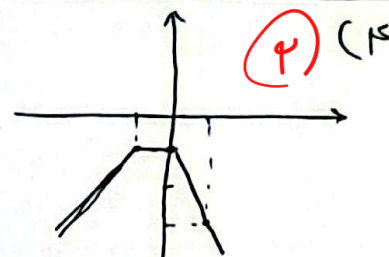
$$y = |x| \left(x^2 + \frac{1}{x} \right) \xrightarrow{x>0} x \left(x^2 + \frac{1}{x} \right) = x^3 + 1$$

$$\xrightarrow{x<0} -x \left(x^2 + \frac{1}{x} \right) = -(x^3 + 1)$$



$$f(x) = \frac{x+1}{|x|-|x+1|} \rightarrow \frac{x+1}{x+1} = 1 \quad \frac{x+1}{-x-x-1} = -1 \quad \frac{x+1}{x-x-1} = -(x+1)$$

$$x \in (-\infty, 0] \rightarrow a=0 \checkmark$$



$$y = \log \frac{x^2-2x-1}{1} \rightarrow x^2-2x-1 \rightarrow \text{الباترون} \rightarrow \text{بعض: الباترون}$$

$$\rightarrow \log \frac{x}{1} \rightarrow \text{الباترون}$$

$$x^2-2x-1 = y \rightarrow (-\infty, x_{\min}) \rightarrow x_{\min} = \frac{-b}{2a} = \frac{2}{2} = 1 \rightarrow (-\infty, 1]$$

$$x^2-2x-1 > 0 \rightarrow (-\infty, -2) \cup (4, +\infty)$$

$$\begin{cases} a^2 \\ a^2 \\ a^2 \end{cases} \begin{cases} a > 1 \\ a=1 \\ 0 < a < 1 \end{cases} \rightarrow \begin{cases} \text{مصفوفة} \\ \text{مصفوفة} \\ \text{مصفوفة} \end{cases}$$

$$f(x) = (a^2-3)^x \quad (1, 5) \quad (2)$$

$$a^2-3 > 1 \rightarrow a^2 > 4 \rightarrow |a| > 2 \rightarrow a > 2 \text{ و } a < -2$$

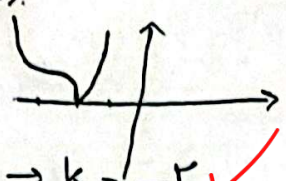
$$a^2-3 = 0 \rightarrow a = \pm \sqrt{3} \quad (2)$$

$$a^2-3 \geq 1 \rightarrow a^2 \geq 4 \rightarrow |a| \geq 2 \rightarrow a \geq 2 \text{ و } a \leq -2 \quad (1)$$

$$f(x) = x^3 + ax^2 + bx + c \rightarrow f(x) = (x+m)^3 + n \rightarrow (-1, -1) \rightarrow m = 1 \quad (2) \quad (✓)$$

$$g(x) = x^3 \rightarrow (0, 0) \text{ Color } x, y, z$$

$$f(x) = (x+1)^3 - 1 \rightarrow |f(x)| = |(x+1)^3 - 1|$$

$$(x+1)^3 - 1 = 0 \rightarrow x+1 = 1 \rightarrow x = 0 \rightarrow (-1, +\infty) \rightarrow k = -1 \quad ✓$$


→ البراسوری →

$$f(x) = x + \sqrt{x} - 2 = \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 - \frac{9}{4} \rightarrow \sqrt{x} \geq 0 \rightarrow \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 \geq \frac{1}{4} \rightarrow (1, 2] \quad (1)$$

$$\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 - \frac{9}{4} \geq -2 \rightarrow \text{مقدور} \rightarrow \text{مقدور البر}$$

$$f_0 f(x) \leq f(\sqrt{x}) \rightarrow f(x) \leq \sqrt{x} \rightarrow x + \sqrt{x} - 2 \leq \sqrt{x} \rightarrow x \leq 2 \rightarrow 0 \leq x \leq 2 \rightarrow \text{داده}$$

$Pof(x)$ مقدور $f(x) \geq 0 \rightarrow x \geq 1$

$x \geq 1$

$$f(x) = \sqrt[3]{9\cos^2 x - 1} - \sqrt[3]{-9\cos^2 x + 1} \rightarrow f(x) = t + \frac{1}{t} \xrightarrow{t \geq 0} t + \frac{1}{t} \geq 2 \quad 0 \quad (9)$$

$$\min t \rightarrow \sqrt[3]{9\cos^2 x - 1} = \sqrt[3]{-1} = -1 \rightarrow \frac{1}{-1} + 2 = \frac{5}{2}$$

$$\max t \rightarrow \sqrt[3]{9\cos^2 x - 1} = \sqrt[3]{1} = 1 \rightarrow 1 + \frac{1}{1} = 2 \rightarrow \left[\frac{5}{2}, \frac{11}{2}\right] \rightarrow$$

$$b - a = \frac{\sqrt{5}}{2}$$

... با سینه ...

$$f(x) = x - [x+1] \rightarrow x - [x] - 1 = f(x) \rightarrow R_f = [-1, 0) \quad (1) \quad (10)$$

$$R_f = D_g \rightarrow g(r) = \frac{r^2 - r^{-2}}{r} = \frac{r - \frac{1}{r}}{r} = -\frac{1}{r}$$

$$g(r) = \frac{r^2 - r^{-2}}{r} = \frac{r^4 - r^{-2}}{r^3} = \frac{r^6 - 1}{r^3} \rightarrow R_{g \circ f} = \left[-\frac{1}{1}, \frac{4}{19}\right) \quad -\frac{1}{r}$$

چون راحت درسته نصف نموده بودیم