

بارس طریش / طلب شد 4 / بارس طریش

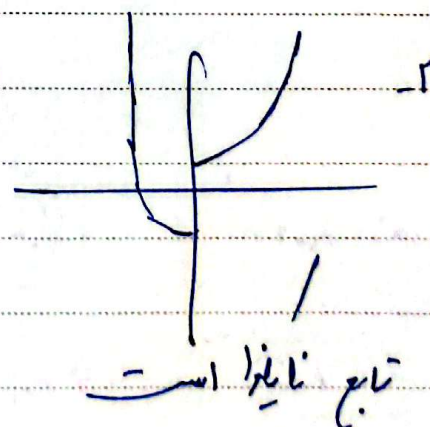
$$f(x) = \begin{cases} x+1 & x \geq 1 \\ x-1 & x < 1 \end{cases} \Rightarrow f(x) = \begin{cases} x-1 & x \geq 1 \\ x+1 & x < 1 \end{cases}$$

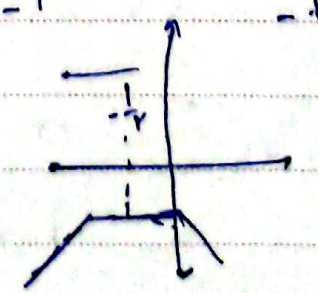
$$y = \sqrt{f(x)-f(1)} \Rightarrow f(x)-f(1) \geq 0$$

$$x \geq 1 \Rightarrow f(x) \geq f(1) \\ \Rightarrow D_f = (-\infty, 1]$$

$$f(x) = (x^2 + x)^2 \Rightarrow f(x) = x^4 + 2x^3 + x^2$$

$$f(x) < f(x^*) \Rightarrow f(x) < f(x^*) \Rightarrow x^* < x \Rightarrow x^* < x$$

$$y = \ln(x + \frac{1}{2}) \Rightarrow \begin{cases} x+1 & x \geq 0 \\ -x-1 & x < 0 \end{cases}$$


$$f(x) = \frac{x+1}{|x|-|x+1|} \Rightarrow \begin{cases} \frac{x+1}{-1} & x \geq 0 \Rightarrow -x-1 \\ \frac{x+1}{-(x+1)} & -1 < x < 0 \Rightarrow -1 \\ x+1 & x \leq -1 \Rightarrow x+1 \end{cases}$$


$$y_1 \frac{(x^2 - 2x - 1)}{x} \cdot y_2 \frac{1}{x^2 - 2x - 1} \Rightarrow (x-2)(x+1)$$

~~ممكن~~

الجزء الثاني مباشر $\rightarrow x^2 - 2x - 1$, $\frac{-2 \pm \sqrt{4+4}}{2}$

$$(-\infty, -1]$$

1) $x^2 - 2 > 1 \Rightarrow x^2 > 3 \Rightarrow x > \sqrt{3} \text{ or } x < -\sqrt{3}$

2) $x^2 - 2 \geq 1 \Rightarrow x^2 \geq 3 \Rightarrow x \geq \sqrt{3} \text{ or } x \leq -\sqrt{3}$

$x \neq \pm \sqrt{2} \Rightarrow x \in (-\infty, -1] \cup [\sqrt{3}, \infty) \cup (-\sqrt{3}, \sqrt{2}) \cup (\sqrt{2}, \infty)$

$f(x) = x\sqrt{x-2}$, $f \circ f(x) \in f(x) \Rightarrow x\sqrt{x-2} \leq \sqrt{x}$

$\Rightarrow x \leq x^2$, $x \in \mathbb{R}^+$, $f(x) \in \mathbb{R}^+ \Rightarrow x\sqrt{x-2} \geq 0$

$\Rightarrow \sqrt{x} \geq 1 \Rightarrow x \geq 1$, $x \in [1, 2]$

$\sqrt[3]{4\cos^2 x} \rightarrow \cos^2 x = 0 \Rightarrow -1$, $\sqrt[3]{4\cos^2 x} \rightarrow \cos^2 x = 1 \Rightarrow 1$
 $\hookrightarrow \cos^2 x = 1 \Rightarrow x = 0$

$$f(x) = x^A \cdot \frac{1}{x^A} \Rightarrow \text{if } A < -1 \Rightarrow f(x) = -\frac{x^A}{A}$$

$$\text{if } A = -1 \Rightarrow f(x) = \frac{10}{1x}$$

$$\Rightarrow Rf = \left[-\frac{x}{\epsilon}, \frac{10}{\epsilon}\right]$$

$$=, \frac{10}{\epsilon} \cdot \frac{x}{x} = \frac{10 \cdot x}{\epsilon} = \frac{x}{\epsilon}$$

$$f(x) = x \cdot [x] \cdot x \Rightarrow -x \leq f(x) \leq x$$

$$x \in [x] \leq 1 \Rightarrow y \circ f(x) = \frac{x \cdot f(x) - f(x)}{x} \Rightarrow \text{if } A = -1 \Rightarrow -\frac{x}{\epsilon}$$

$$\text{if } A = -1 \Rightarrow -\frac{10}{x} \Rightarrow x \circ f = \left[-\frac{10}{x}, -\frac{x}{\epsilon}\right]$$