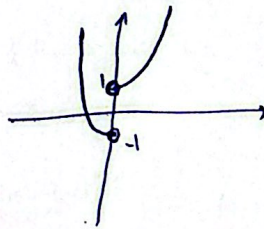


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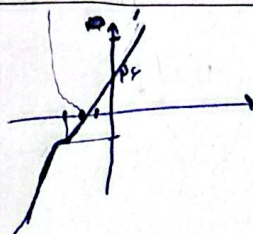
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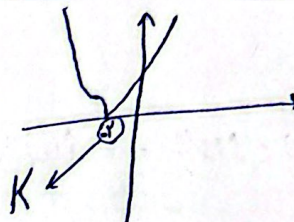
10

$$f(x) = (x+2)^{1/3} - 1$$

$$x_{\text{intercept}} = 0 = (x+2)^{1/3} \Rightarrow x = -2$$



$$\Rightarrow |f(x)| =$$



$$f(x) = x + \sqrt{x} - 2 \Rightarrow f(x): \text{ساده}$$

$$f(f(x)) \leq f(\sqrt{x}) \Rightarrow f(x) \leq \sqrt{x} \Rightarrow x + \sqrt{x} - 2 \leq \sqrt{x} \Rightarrow x - 2 \leq 0 \Rightarrow x \leq 2 \quad I$$

$$D_f = [0, +\infty) \quad II$$

$$I \cap II = [0, 2] \Rightarrow 0, 1, 2 \Rightarrow \text{مجموعه جواب}$$

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

$$f(x) = \underbrace{t^3}_{\text{ساده}} - \underbrace{t^2}_{\text{ساده}} \Rightarrow \text{تابع ساده} \quad 0 \leq \cos^2 x \leq 1$$

$$-1 \leq 9\cos^2 x - 1 \leq 1 \Rightarrow -1 \leq \sqrt[3]{9\cos^2 x - 1} \leq 1 \Rightarrow -1 \leq t \leq 1$$

$$R_g = [t^{-1} - t^1, t^1 - t^{-1}] = [-1, 0, +1, \sqrt{3}, 0] \Rightarrow \text{چون تابع معکوس است ابتدا انتهای را قرار می دهیم}$$

$$f(x) = x - [x] - 2 \quad 0 \leq x - [x] < 1 \Rightarrow -2 \leq x - [x] - 2 < -1$$

$$g(x) = \frac{x^2 - x}{x} = x - 1 \quad \text{ساده}$$

$$R_{g \circ f} = [g(-2), g(-1)] \Rightarrow \left[-\frac{10}{1}, -\frac{3}{1}\right]$$

$$g(-2) = \frac{1 - 4}{-2} = \frac{-3}{-2} = \frac{3}{2}$$

$$g(-1) = \frac{1 - 1}{-1} = \frac{0}{-1} = 0$$