

دھرم پسران A

«بناام خدا»

امیرعلی میرزائی

$$y = \sqrt{x f(x)} \rightarrow x f(x) > 0$$

$$\rightarrow DF = [-\Delta, 0] \cup [2, \Delta]$$

	-4	-2	0	2	4
$f(x)$	+	-	-	+	+
x	-	-	+	+	+
p	-	+	-	+	+

$$y = \sqrt{\frac{-x}{f(x)}} \rightarrow \frac{-x}{f(x)} > 0, f(x) \neq 0$$

	-4	-2	0	2	4
$-x$	+	+	-	-	-
$f(x)$	-	+	-	+	+
p	-	+	+	+	-

$$DF = (-3, 0) \cup (0, 2)$$

$$-2 < -1 < 1 \leftarrow \text{صحیح}$$

$$f(x) - 2f(-2) = x - 3x + 4 \xrightarrow{\text{ابتدا } x = -2 \text{ می‌نویسیم}} f(-2) - 2f(-2) = 2 \rightarrow f(-2) = -2$$

$$f(-2) - \frac{2(-2)}{-4} = 4 + 1 + 1 \rightarrow f(-2) = 1$$

$$f(f(0)) + f(f(1)) \rightarrow f(f(0)) = f(1) = 1$$

۳-۲

$$f(f(1)) = f(2) = 2 \rightarrow f(f(0)) + f(f(1)) = 1 + 2 = 3$$

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

$$f(x-1) + f(x) = 4x + 2 \quad \text{یا } f(x) = 4x + 2 \quad \text{نقش می کند ۱}$$

$$f(1-1) + f(1) = 4 + 2 \rightarrow f(1) = a - b + 2 \text{ و } f(0) = 2$$

$$\rightarrow 2 + a - b + 2 = 1 \rightarrow a - b = -3$$

$$f(\sqrt{3}-1) = \text{؟؟} \rightarrow \text{بجای ۱ در ۲ یا ۳ می گذاریم}$$

۳-۴

$$f(x) = \frac{x^2 + 4x + 0}{x^2 + 4x + 1} = \frac{(x+2)^2 + 1}{(x+2)^2 + 1}$$

$$= \frac{(\sqrt{3})^2 + 1}{(\sqrt{3})^2 + 1} = \frac{4}{4} \rightarrow f(\sqrt{3}-1) = \frac{4}{4}$$

$$f\left(x - \frac{1}{x}\right) = \frac{x^2 + 1}{x^2} \xrightarrow{\text{داده سوال}} x - \frac{1}{x} = -3 \quad \text{① - V}$$

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

$$\rightarrow f(-3) = (-3)^2 + 2 = 11$$

$$f(x) = \{(2, 0), (1, -4), (0, 2), (7, 1)\} \quad \text{② A}$$

$$g(x) = \sqrt{9 - x^2} \rightarrow Df \Rightarrow 9 - x^2 \geq 0 \rightarrow 9 \geq x^2, 3 \geq x \geq -3$$

$$\Rightarrow \{(2, \sqrt{5}), (1, \sqrt{8}), (0, 3), \dots\}$$

$$\text{الف) } \frac{f}{g} = \left\{ \left(2, \frac{0}{\sqrt{5}}\right), \left(1, \frac{-4}{\sqrt{8}}\right), \left(0, \frac{2}{3}\right) \right\}$$

$$\text{ب) } \frac{g}{f} = \left\{ \left(0, \frac{3}{2}\right), \left(1, \frac{\sqrt{8}}{-4}\right) \right\} \quad \text{فنی تکراره بابت برهه ها (2, \frac{\sqrt{5}}{0}) \text{ نوشته نشد}$$

$$f(x) = \{(2, 1), (3, 4), (-5, 2), (1, -2)\}$$

$$\text{③ - 1, 5}$$

$$\text{الف) } 2f(x) = \{(2, 2), (3, 8), (-5, 4), (1, -4)\}$$

$$\text{ب) } f(x) + 1 = \{(2, 2), (3, 5), (-5, 3), (1, -1)\}$$

$$\text{ج) } 3f^2(x) + 1 = \{(2, 4), (3, 49), (-5, 13), (1, 13)\}$$

$$\text{د) } f(2x) = \{(4, 1), (6, 4), (-10, 2), (2, -2)\}$$

$$f(x) = \{(2, 3), (7, 2), (1, 4), (3, 1), (5, 2)\}$$

۱۔ (د)

$$g(x) = \{(1, 0), (2, 1), (-1, 4), (-2, -3), (3, -1)\}$$

$$f - g = \{(1, 4), (2, 2), (3, 2)\} \text{ (ب)}$$

$$\frac{f}{g} = \{(2, 4), (3, -1)\} \text{ (ب)} \text{ — } (1, \frac{1}{0}) \text{ نوٹہ نشدہ}$$