



تالیف نگاره

۱۹، ۲۵ آریز

شکله دهوی

یازدهم دختر

$$f(x) + g(x) = \sqrt{x+4}\sqrt{x-4} + \sqrt{x-4}\sqrt{x-4} = \sqrt{x-4} + 4\sqrt{x-4} + 4 + \sqrt{x-4} = 2\sqrt{x-4} + 4$$

$$\sqrt{(\sqrt{x-4}+2)^2} + \sqrt{(\sqrt{x-4}-2)^2} = |\sqrt{x-4}+2| + |\sqrt{x-4}-2|$$

حالا چون $x \geq 4$ هر دو
تور مطلق را می‌توانیم برمی‌داریم

$$\sqrt{x-4}+2 + \sqrt{x-4}-2 = 2\sqrt{x-4} = a+b\sqrt{x}+c$$

$$\frac{a+b}{c} = \frac{2}{-4} = -\frac{1}{2} \quad \rightarrow c = -4$$

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

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

$$f(x) = \{(2,-4), (0, \frac{1}{4})\}$$

$$\frac{g}{f} = \{(2, -\frac{1}{4}), (0, 4)\}$$

$$f(x^2) = \{(\frac{1}{4}, 2), (\frac{4}{9}, -1), (2, 2), (-\frac{1}{4}, 4)\}$$

$$f(x^2) = \{(1, 2), (-1, 2), (2, 2), (-2, 2), (-\sqrt{3}, -1), (\sqrt{3}, -1)\}$$

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

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

$$f(x^2) = \{(2, 0), (3, 0), (-2, 4)\}$$

$$\frac{f(x)}{g(x)+1} \rightarrow \frac{x-2 \neq 0 \rightarrow x \neq 2}{x \neq 0 \rightarrow \sqrt{x} \neq 0 \rightarrow \sqrt{x} \neq 1 \rightarrow x \neq 1}$$

$$g(x) \rightarrow 2$$

$$\text{مخرج} \rightarrow \{0, 1, 3\}$$

$$\frac{x^2 - 2x}{x^2 - 4x + 3} = \frac{x(x-2)}{(x-1)(x-3)}$$

$$f(x) = \{(1, 0), (2, 2), (0, 0)\}$$

$$\frac{f(x)}{g(x)} = \{(1, 0), (2, 1), (0, 0)\}$$

دقت!

(1, 0)

$$Df \rightarrow \infty - \infty - 4 \rightarrow \infty - \infty + 4 \rightarrow 1 \leq x \leq 4$$

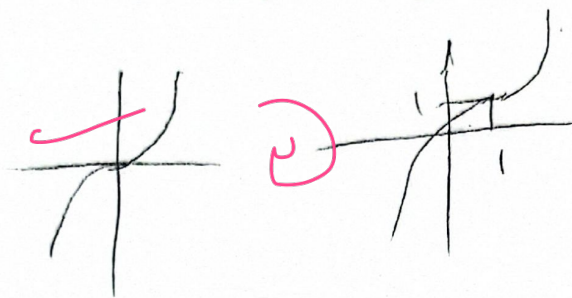
$$Df \cap Dg = \{1, 2, 3\}$$

$$\frac{f}{g} = h = \{(1, 0), (2, \sqrt{\frac{2}{3}}), (3, 0)\}$$

الف) $x^3 - 3x^2 + 3x + 1 = y$

$(x-1)^3 = y-1 \rightarrow x-1 = \sqrt[3]{y-1} \rightarrow x = \sqrt[3]{y-1} + 1 \rightarrow R =$

$y = (x-1)^3 + 1$



این برای بعد

ب) $y(x^2 - 2x) = 1$

$x^2 - 2x = \frac{1}{y} \rightarrow x^2 - 2x - \frac{1}{y} = 0$

$\Delta = b^2 - 4ac = 4 - 4 \cdot (-\frac{1}{y}) = 4 + \frac{4}{y}$

$y < -1 \rightarrow \Delta < 0$
 $y > 0 \rightarrow \Delta > 0$

$x = \frac{2 \pm \sqrt{4 + \frac{4}{y}}}{2} = 1 \pm \sqrt{1 + \frac{1}{y}}$

$x = \frac{-b}{2a} = \frac{2}{2} = 1$

الف) $x^2 - 4x + 1 \rightarrow a > 0 \rightarrow \min$

$y = 4 - 4 + 1 = 1 \rightarrow [1, +\infty)$

ب) $-x^2 + 4x + 2 \rightarrow a < 0 \rightarrow \max$

$x = -\frac{b}{2a} = \frac{4}{-2} = -2$
 $y = -9 + 18 + 2 = 11 \rightarrow (-\infty, 11]$

ج) $\sqrt{x^2 - 4x - 3} \rightarrow a > 0 \rightarrow \min$

$x = \frac{b}{2a} = \frac{4}{2} = 2$

$y = 4 - 8 - 3 = -7 \rightarrow (-7, +\infty)$

د) $\sqrt{4x - x^2} \rightarrow a < 0 \rightarrow \max$

$x = -\frac{b}{2a} = \frac{4}{-2} = -2$

$y = 18 - 9 = 9$

$y = -\infty, 9 \rightarrow (0, 3]$

الف) R

ج) $\sqrt{R} \rightarrow (0, +\infty)$

ب) R

د) $R^2 = [0, +\infty)$

فقط عبارت با توان ۲ نامتناهی است!

الف) $R = \{x\}$

ب) $R = \{x\}$