

$$A \times B = \{(1,1)(1,3)(2,2)(2,3)(3,3)\}$$

$$B^2 = \{(2,2)(2,3)(3,3)(3,3)\} \quad A \times B - B^2 = \{(1,1)(1,3)\} \quad \checkmark$$

$$f(x) = \{(x, x^2)(x, 1)(x, x)(-x, x)(x, x+1)(x, x)\} \quad m = -1$$

$$m^2 = m+1 \quad m^2 - m - 1 = 0 \quad \begin{matrix} -1 \\ 2 \end{matrix} \quad \checkmark$$

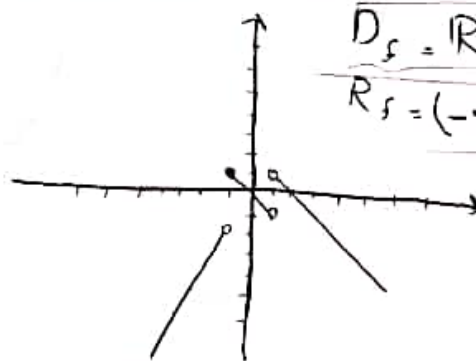
$$g(x) = \{(x, x^2)(x, 1)(x, x)(x, x+1)(-x, x)(-1, x)\} \quad \text{از این هم مقدار m پیدا می شود و در دو کتاب هم نوشته است}$$

$$m^2 = m+1 \quad m^2 - m - 1 = 0 \quad \begin{matrix} -1 \\ 2 \end{matrix} \quad \checkmark$$

$$f(x) = \begin{cases} x^2 - 1 & x \leq 1 \\ ax + b & 1 < x \leq 2 \\ x^2 & x \geq 2 \end{cases} \quad \begin{matrix} x^2 - 1 = a + b \\ \Rightarrow a + b = 0 \\ x^2 = 1 = 2a + b \end{matrix} \quad \begin{cases} a + b = 1 \\ a + b = 0 \end{cases} \quad \begin{matrix} 1 \times -1 = -1 \\ -1 \times 1 = -1 \end{matrix} \quad \begin{matrix} a = 1 \\ b = -1 \end{matrix} \quad \checkmark$$

$$f(x) = \begin{cases} x^2 - k & x \geq k \\ k - x^2 & x \leq k \end{cases} \quad \begin{matrix} x^2 k - k^2 = k - x^2 k \\ \Delta k = V \\ k = \frac{V}{\Delta} \end{matrix} \quad \checkmark$$

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



$$D_f = \mathbb{R} - \{1\} \quad \checkmark \quad R_f = (-\infty, 1] - \{1\}$$

$$(1, \sqrt{5})$$

$$a) \quad x^2 y^2 + x^2 + 1 = 0 \quad \text{تایید نیست} \quad x^2 y^2 = -x^2 - 1$$

$$\begin{cases} x^2 y_1^2 = -x^2 - 1 \\ x^2 y_2^2 = -x^2 - 1 \end{cases} \rightarrow x^2 y_1^2 = x^2 y_2^2 \rightarrow y_1 = y_2 \quad \checkmark$$

$$b) \quad x^2 + y^2 - 2x - 2y + 1 = 0 \quad \checkmark$$

$$(x-1)^2 + (y-1)^2 = 0 \quad \text{هواره نیست} \quad \text{هواره نیست} \quad y = \frac{x}{2} \quad x = 1$$



الف) $x \sin y = y \sin x$ ✗

و در نقاط مشخصه و نقاط
باشد برنام نیست

✓

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$ ✓

- V

$\frac{x}{y} + \frac{y}{x} = 2 \Rightarrow \sqrt{\frac{x}{y}} = \sqrt{\frac{y}{x}} = 1$ (۲)

$\frac{x^2 + y^2}{xy} = 2 \Rightarrow x^2 + y^2 = 2xy$

$x^2 + y^2 - 2xy = 0$

$(x - y)^2 = 0$

$\Rightarrow x = y \rightarrow$ تابع های

✓

الف) $y = \sqrt{\frac{x-1}{x-2}} + \sqrt{\frac{x-2}{x-1}}$

- A

(۱, ۲)

$\frac{1}{x-1} + \frac{1}{x-2} \rightarrow (0, 1]$ ✓

ب) $\sqrt{x} + \sqrt{y-1} = \sqrt{4} \rightarrow D_f = [0, +\infty)$

$\sqrt{x} - \sqrt{x} \geq 0 \rightarrow x \leq 3$

$D = [0, 3]$

الف) $y = \frac{\sqrt{x^2 - \sqrt{2} + 1}}{\sqrt{x^2 - 1.2 + 1}} \sim \frac{1}{x-1} + \frac{1}{x-2}$

$D_f = (-\infty, 1]$ ✓

- 9

(۲)

ب) $\sqrt{\frac{x^2 - \sqrt{2} + 1}{x^2 - 1.2 + 1}} \sim \frac{1}{x-1} + \frac{1}{x-2}$

$(-\infty, 1] \cup (2, 3] \cup (1, +\infty)$ ✓

الف) $y = \frac{\sqrt{x^2 - \sqrt{2} + 1}}{\sqrt{x^2 - \sqrt{2} + 1}} \rightarrow +1, +\frac{1}{x}$

$\frac{1}{x-1} + \frac{1}{x-2} \rightarrow +1, +\frac{1}{x}$

$D_f = (-\infty, 1] \cup [1, +\infty) = \mathbb{R}$
 $D = (-\infty, 1) \cup [\frac{1}{x}, +\infty)$

ب) $y = \sqrt{\frac{x^2 - \sqrt{2} + 1}{x^2 - \sqrt{2} + 1}} \rightarrow +1, +\frac{1}{x}$

$\frac{1}{x-1} + \frac{1}{x-2} \rightarrow +1, +\frac{1}{x}$

$\frac{1}{x-1} + \frac{1}{x-2} \rightarrow +1, +\frac{1}{x}$

$(-\infty, 1] \cup [1, 1] \cup (\frac{1}{x}, +\infty)$

$D = (-\infty, 1) \cup (1, \frac{1}{x}) \cup [\frac{1}{x}, +\infty)$