

$$\left. \begin{aligned} A \times B &= \{(1,2)(1,3)(2,2)(2,3)(3,2)(3,3)\} \\ B \times B &= \{(2,2)(2,3)(3,2)(3,3)\} \end{aligned} \right\} \text{ منها}$$

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

الف: $(3, m^2) = (3, m+2)$ $m+2 = m^2$ $m^2 - m - 2 = 0$ $(m-2)/(m+1) = 0 \rightarrow \begin{matrix} m=2 \text{ X} \\ m=-1 \checkmark \end{matrix}$

ب: $(3, m^2) = (3, m+2)$ $m^2 = m+2$ $m^2 - m - 2 = 0$ $(m-2)(m+1) = 0 \rightarrow \begin{matrix} m=2 \text{ X} \\ m=-1 \text{ X} \end{matrix}$
 ← به ازای هیچ مقدار تابع نباشد

$$x=1 \Rightarrow a+b=0$$

$$x=2 \Rightarrow 2a+b=1$$

$$2a+b=1$$

$$a+b=0$$

$$a=1$$

$$1+b=0$$

$$b=-1$$

$$ab = 1 \times -1 = -1$$

if $x=k \Rightarrow 2x-3 = 4-3x$

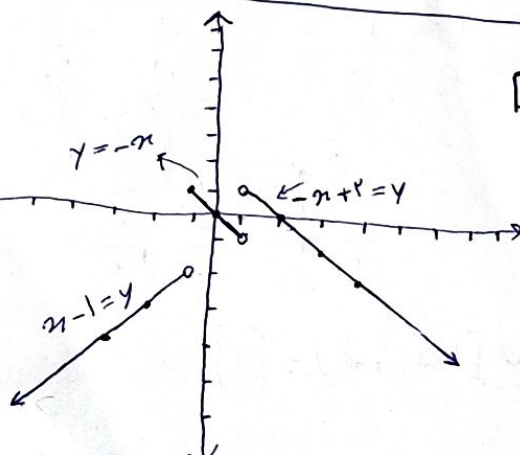
$$\Delta x = 5$$

$$x = \frac{5}{\Delta} = k$$

$$x > 1 \quad \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 2 \\ 0 \end{bmatrix} \begin{bmatrix} 3 \\ -1 \end{bmatrix}$$

$$-1 < x < 1 \quad \begin{bmatrix} 1 \\ -1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} -1 \\ 1 \end{bmatrix}$$

$$x < -1 \quad \begin{bmatrix} -1 \\ -2 \end{bmatrix} \begin{bmatrix} -2 \\ -3 \end{bmatrix} \begin{bmatrix} -3 \\ -4 \end{bmatrix}$$



$$D_f = \mathbb{R} - \{1\}$$

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

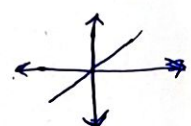
الف: $\begin{cases} 2y_1^2 = -x^2 + 1 \\ 2y_2^2 = -x^2 + 1 \end{cases} \Rightarrow y_1 = y_2 = \text{تابع}$

ب: $x^2 + 4y^2 - 2x - 12y + 10 = 0$

$(x-1)^2 + (2y-3)^2 = 0 \Rightarrow \begin{cases} x-1=0 \\ 2y-3=0 \end{cases} \Rightarrow \begin{cases} x=1 \\ y=\frac{3}{2} \end{cases}$ فقط نقطه $\begin{bmatrix} 1 \\ 1.5 \end{bmatrix}$ تابع ✓

الف: مثال نقض: if $x=0$ $0 \times \sin y = 0 \times y$ تابع x هر چیزی می توانیم بگذاریم

ب: $\left(\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}}\right)^2 = 4 \Rightarrow \frac{x}{y} + \frac{y}{x} + 2 = 4 \Rightarrow \frac{x^2 + y^2}{xy} = 2 \Rightarrow x^2 + y^2 - 2xy = 0$

$(x-y)^2 = 0 \Rightarrow x=y$ تابع ✓ 

الف: $\frac{x-1}{x-3} \geq 0 \Rightarrow \frac{1-x}{x-3} \geq 0 \Rightarrow \frac{1}{0} - \frac{1}{0} + \frac{3}{0} \cap \frac{0}{0} + \frac{1}{0} - \frac{3}{0} = (0, 1]$

$y = 4 - x - 2\sqrt{3x}$

$(\sqrt{y-1})^2 = (\sqrt{3}-\sqrt{x})^2 \Rightarrow y-1 = 3-x-2\sqrt{3x} \Rightarrow D_f = [0, +\infty)$

الف: $\begin{cases} x^2 - \sqrt{x+9} \geq 0 \\ -9x + 16 \geq 0 \end{cases} \Rightarrow \begin{cases} (x-9)(x-1) \geq 0 \\ 16 \geq 9x \end{cases} \Rightarrow \frac{1}{0} - \frac{1}{0} + \frac{9}{0} \cap \frac{0}{0} + \frac{1}{0} - \frac{9}{0} = [9, +\infty)$

ب: $\frac{x^2 - \sqrt{x+9}}{x^2 - 10x + 16} \geq 0 \Rightarrow \frac{(x-9)(x-1)}{(x-1)(x-2)} \geq 0 \Rightarrow \frac{1}{0} - \frac{1}{0} + \frac{9}{0} \cap \frac{0}{0} + \frac{1}{0} - \frac{1}{0} = D_f = (-\infty, 1] \cup (2, 9] \cup (1, +\infty)$

الف: $\begin{cases} 2x^2 - 5x + 3 \geq 0 \\ 3x^2 - \sqrt{x+4} \geq 0 \end{cases} \Rightarrow \begin{cases} x=\frac{3}{2} \\ x=1 \end{cases} \Rightarrow \begin{cases} x=1 \\ x=\frac{4}{3} \end{cases} \Rightarrow \frac{1}{0} - \frac{1}{0} + \frac{1.5}{0} \cap \frac{1}{0} - \frac{4}{0} + \frac{1.5}{0} = D_f = (-\infty, 1) \cup [1.5, +\infty)$

ب: $\frac{2x^2 - 5x + 3}{3x^2 - \sqrt{x+4}} \geq 0 \Rightarrow \frac{1}{0} - \frac{1}{0} + \frac{1.5}{0} \cap \frac{1}{0} - \frac{4}{0} + \frac{1.5}{0} = D_f = (-\infty, \frac{4}{3}) \cup [1.5, +\infty) - \{1\}$

$D_f = (-\infty, \frac{4}{3}) \cup [1.5, +\infty) - \{1\}$