

$$B^2 = \{(2,2), (2,3), (3,2), (3,3)\}$$

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

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

الف) $m^2 = m + 2$ $m^2 - m - 2 = 0$ $\begin{cases} m=2 \\ m=-1 \end{cases}$ $\overline{m=2}$

ب) $m^2 = m + 2$ $m^2 - m - 2 = 0$ $\begin{cases} m=2 \\ m=-1 \end{cases}$ $\overline{m=2}$ به ازای هیچ معادلی از m پاسخ نیست

$$x=1 \rightarrow 1-1=a+b \rightarrow \begin{cases} a+b=0 \end{cases}$$

$$a=1 \quad b=-1$$

$$x=2 \rightarrow 2-2=a+b \rightarrow \begin{cases} a+b=0 \end{cases}$$

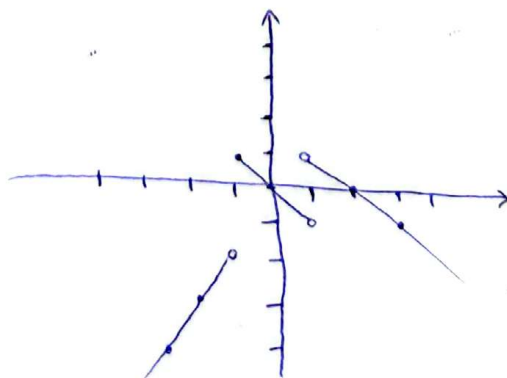
$$a \times b = 1 \times (-1) = -1 \quad \overline{-1}$$

$$x=k \rightarrow 2k-3 = k-2k \rightarrow \omega k = 3 \rightarrow k = \frac{3}{\omega}$$

$$\begin{array}{c|ccc} x & 1 & 2 & 3 \\ \hline y & 1 & 0 & -1 \end{array}$$

$$\begin{array}{c|ccc} x & -1 & 0 & 1 \\ \hline y & 1 & 0 & -1 \end{array}$$

$$\begin{array}{c|ccc} x & 2 & 3 & 4 \\ \hline y & 2 & 3 & 4 \end{array}$$



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

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

$$\begin{cases} x_1^2 + x_1 + 1 = 0 \\ x_2^2 + x_2 + 1 = 0 \end{cases} \xrightarrow{x_1 = x_2} x_1^2 = x_2^2 \rightarrow x_1 = x_2 \quad \checkmark$$

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$$x=1 \rightarrow x_1^2 + x_1 + 1 = 0 \rightarrow (x_1 + 1)^2 = 0 \quad x_1 = -1 \rightarrow y = \frac{1}{x} \quad \checkmark \text{ معادله } y = \frac{1}{x}, x=1$$

$$x=0 \rightarrow x_1^2 + x_1 + 1 = 0 \rightarrow x_1^2 = 0 \quad \text{مقدار } x \text{ و } y \text{ محدود نیست}$$

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$$\left(\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} \right)^2 = (x)^2 \rightarrow \frac{x}{y} + \frac{y}{x} + 2 = x^2 \rightarrow \frac{x^2 + y^2}{xy} = x^2 \rightarrow x^2 + y^2 = x^2 y \rightarrow x^2 + y^2 - x^2 y = 0$$

$$\rightarrow (x-y)^2 = 0 \rightarrow x=y \quad \checkmark$$

$$\begin{aligned} \text{الف) } \frac{x-1}{x-2} > 0 \quad & \begin{matrix} x=1 \\ x=2 \end{matrix} \quad \frac{1}{x-2} \quad \text{ح: } (-\infty, 1) \cup (2, +\infty) \\ \frac{x-2}{x} > 0 \quad & \begin{matrix} x=2 \\ x=0 \end{matrix} \quad \frac{1}{x} \quad \text{ح: } (0, 2] \end{aligned} \quad \left. \begin{array}{l} \\ \end{array} \right\} \text{ح: } (0, 1]$$

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$$\begin{aligned} \text{ب) } \frac{x}{\sqrt{y-1}} = \sqrt{x} \cdot \sqrt{x} & \rightarrow \sqrt{x} \cdot \sqrt{x} = \sqrt{x} \rightarrow x \leq 1 \quad \left. \begin{array}{l} \text{چون جواب را به شکل } x \text{ می‌خواهیم} \\ \text{منفی نباشد} \end{array} \right\} x = [0, 1] \\ \frac{x}{y-1} > 0 \quad y > 1 \quad & \begin{matrix} x=0 \rightarrow y=1 \\ x=1 \rightarrow y=1 \end{matrix} \quad y = [1, 1] \end{aligned}$$

$$\begin{aligned} \text{الف) } x^2 - 4x + 4 > 0 \quad & (x-2)^2 > 0 \quad \begin{matrix} x=4 \\ x=1 \end{matrix} \quad \frac{1}{x-1} \quad \text{ح: } (-\infty, 1) \cup (4, +\infty) \\ x-1 > 0 \quad x+4 > 0 \quad & 14 > 4x \quad \frac{14}{4} > x \quad \text{ح: } (-\infty, \frac{14}{4}) \quad \text{دامنه: } (-\infty, 1] \end{aligned}$$

$$\begin{aligned} \text{ب) } \frac{x^2 - 4x + 4}{x^2 - 6x + 4} > 0 \quad & \begin{matrix} x=4 \\ x=1 \end{matrix} \quad \frac{1}{x-1} \quad \text{ح: } (-\infty, 1) \cup (4, +\infty) \\ \frac{x^2 - 4x + 4}{x^2 - 6x + 4} > 0 \quad & \begin{matrix} x=2 \\ x=1 \end{matrix} \quad \frac{1}{x-1} \quad \text{ح: } (-\infty, 1) \cup (2, 4] \cup (4, +\infty) \end{aligned}$$

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$$\begin{aligned} \text{الف) } x^2 - 3x + 4 > 0 \quad & \begin{matrix} x=1 \\ x=\frac{3}{2} \end{matrix} \quad \frac{1}{x-1} \quad \text{ح: } (-\infty, 1) \cup (\frac{3}{2}, +\infty) \\ 3x^2 - 4x + 4 > 0 \quad & \begin{matrix} x=1 \\ x=\frac{4}{3} \end{matrix} \quad \frac{1}{x-1} \quad \text{ح: } (-\infty, 1) \cup (\frac{4}{3}, +\infty) \end{aligned} \quad \left. \begin{array}{l} \\ \end{array} \right\} \text{دامنه: } (-\infty, 1) \cup [\frac{3}{2}, +\infty)$$

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$$\begin{aligned} \text{ب) } \frac{x^2 - 3x + 4}{x^2 - 4x + 4} > 0 \quad & \begin{matrix} x=1 \\ x=\frac{3}{2} \end{matrix} \quad \frac{1}{x-1} \quad \text{ح: } (-\infty, 1) \cup (\frac{3}{2}, +\infty) \\ \frac{x^2 - 3x + 4}{x^2 - 4x + 4} > 0 \quad & \begin{matrix} x=1 \\ x=\frac{4}{3} \end{matrix} \quad \frac{1}{x-1} \quad \text{ح: } (-\infty, 1) \cup (1, \frac{4}{3}) \cup [\frac{3}{2}, +\infty) \end{aligned}$$