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

$$B^2 = \{(1,2) \text{ و } (2,3) \text{ و } (3,2) \text{ و } (3,3)\}$$

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

✓ (۵)

الف) $m^2 = m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m=2$ غلط $m=-1$ ✓

ب) $m^2 = m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m=2$ غلط $m=-1$ غلط

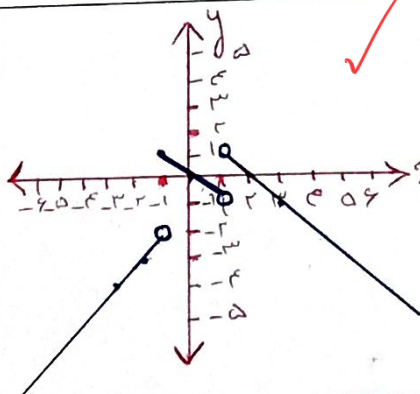
(۵)

اگر $x=1 \rightarrow a+b=0$ و اگر $x=2 \rightarrow 2a+b=1 \rightarrow a=1$ و $b=-1$
 $a \times b = -1$

✓ (۵)

$$2K-3 = 4-3K \rightarrow 5K=7 \rightarrow K=\frac{7}{5}$$

(۵)



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

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

(۵)

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الف) $y^3 = -\frac{1}{2}x^2 - \frac{1}{2} \rightarrow y_1^3 = -\frac{1}{2}x^2 - \frac{1}{2} \rightarrow y_1^3 = y_2^3 \rightarrow y_1 = y_2$ تابع است. (5)

ب) $4y^2 - 12y + 9 + x^2 - 2x + 1 = 0$
 $(2y-3)^2 + (x-1)^2 = 0 \rightarrow x=1, y=1.5$ تابع است.

الف) y هر مقدار طخواهی تواند $\sin x = 0 \rightarrow x = 180^\circ$ اگر x باشد تابع نیست. (5)

ب) $\frac{x}{y} = \frac{y}{x} = 1 \rightarrow x=y$ تابع است. (5)

الف) $\frac{x-1}{x-3} \geq 0 \rightarrow \frac{1}{x-3} \geq 0 \rightarrow x > 3$ و $\frac{x-2}{x} \geq 0 \rightarrow x < 2$
 $(-\infty, 2) \cup (3, +\infty)$ (I) (1,5)

(I) $\cap$ (II) = $(0, 1]$ $\rightarrow D_f = (0, 1]$

ب) $\sqrt{y-1} = \sqrt{3} - \sqrt{x} \rightarrow y-1 = 3 + x - 2\sqrt{3x} \rightarrow y = 4 + x - 2\sqrt{3x} \rightarrow x \geq 0$
 $D_f = [0, +\infty)$

الف) $x^2 - 7x + 6 \geq 0 \rightarrow \frac{1}{x-6} \geq 0 \rightarrow x < 6$ و $(x-1)(x-2) \geq 0 \rightarrow x < 1$ و $x > 2$
 $D_f = (I) \cap (II) = (-\infty, 1) \cup (2, +\infty)$ (1,5)

ب) $x^2 - 10x + 16 \geq 0 \rightarrow \frac{1}{x-10} \geq 0 \rightarrow x < 10$ و $(x-2)(x-1) > 0 \rightarrow x < 1$ و $x > 2$
 $D_f = (-\infty, 1) \cup (2, 10)$ (1,5)

الف) $2x^2 - 5x + 3 \geq 0 \rightarrow \frac{1}{x-1.5} \geq 0 \rightarrow x < 1.5$ و $(x-1)(2x-3) \geq 0 \rightarrow x < 1$ و $x > 1.5$
 $D_f = (I) \cap (II) = (-\infty, 1) \cup [1.5, +\infty)$ (5)

ب) $2x^2 - 5x + 3 \geq 0 \rightarrow \frac{1}{x-1.5} \geq 0 \rightarrow x < 1.5$ و $(x-1)(3x-2) > 0 \rightarrow x < \frac{2}{3}$ و $x > 1$
 $D_f = (-\infty, 1) \cup (\frac{2}{3}, 1.5) \cup [1.5, +\infty)$ (5)