

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

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

$$B \times B = \left\{ (2,2), (2,3), (3,2), (3,3) \right\}$$

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

الف) برای تابع بران (الف) $(3, m^2) = (3, m+2) \Rightarrow m^2 = m+2 \quad m^2 - m - 2 = 0$
 $m = 2 : (2, 4) \neq (2, 1) \rightarrow m \neq 2 \rightarrow m = -1$ $(m-2)(m+1) = 0$
 $m = -1 : (-1, 1) \neq (-1, 3) \rightarrow m \neq -1$ $m - 2 = 0 \quad m + 1 = 0$
 $m = 2, m = -1$

ب) برای تابع بران (ب) $(3, m^2) = (3, m+2) \Rightarrow m^2 = m+2$ $m^2 - m - 2 = 0$
 $m = 2 : (2, 4) \neq (2, 1) \rightarrow m \neq 2$ $(m-2)(m+1) = 0$
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 $m = 2, m = -1$

$$x = 1 \leadsto x^2 - 1 = 0 \quad (1)^2 - 1 = 0$$

$$ax + b = 0 \quad a(1) + b = 0$$

$$x = 2 \leadsto x^2 = 1 \quad (2)^2 = 1$$

$$ax + b = 0 \quad a(2) + b = 1$$

$$a \times b = 1 \times (-1) = -1$$

$$\begin{cases} a + b = 0 \\ 2a + b = 1 \end{cases} \Rightarrow a = -b \quad 2(-b) + b = 1 \Rightarrow b = -1 \quad a = -b \Rightarrow a = -(-1) = 1$$

$$x = k \leadsto 2x - 3 = 8 - 2x$$

$$\omega x = v$$

$$x = \frac{v}{\omega}, \quad x = k \Rightarrow k = \frac{v}{\omega}$$

$$x = 2 \leadsto -2 + 2 = 0$$

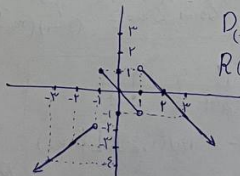
$$x = 3 \leadsto -3 + 2 = -1$$

$$x = -1 \leadsto -(-1) = 1$$

$$x = 0 \leadsto -(0) = 0$$

$$x = -2 \leadsto -(-2) = 2$$

$$x = -3 \leadsto -(-3) = 3$$



$$D(f) = \mathbb{R} - \{1\}$$

$$R(f) = [-\infty, 1]$$

