

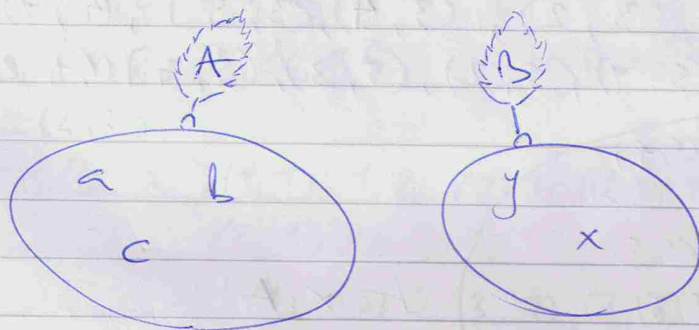
# Producto Cartesiano 1)

## Relaciones 2)

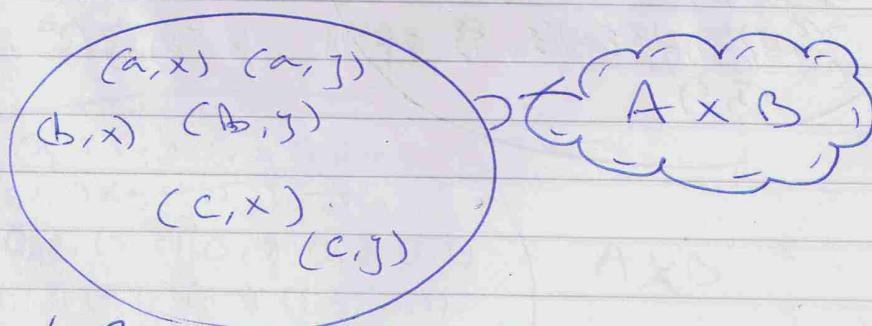
## Funciones 3)

- 1) Se llama P.C de dos conjuntos " $A \times B$ " al conjunto de pares ordenados tales que el primer elemento de par ordenado pertenece al primer conjunto y el segundo elemento pertenece al segundo conjunto.

Producto Cartesiano  $\Rightarrow$  Par ordenado.



$$A \times B = \{ (a, x), (a, y), (b, x), (b, y), (c, x), (c, y) \}$$



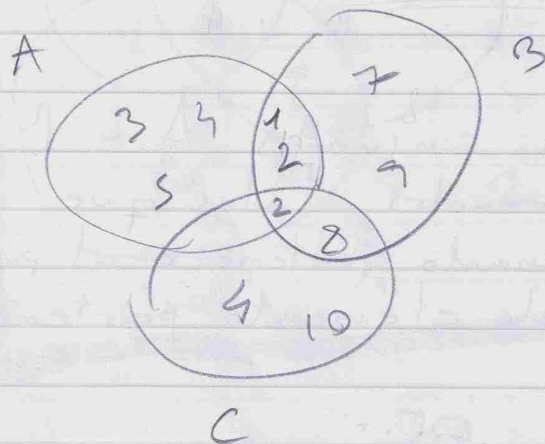
2)  $2 \in A \neq 2 \in B \neq 2 \in C$   
          ↓                  ↓                  ↓  
      Set A          Set B          Set C

3)  $A \times B \neq B \times A$

Dados :  $A = \{1, 2, 3, 4, 5\}$

$B = \{1, 2, 7, 8, 9\}$

$C = \{2, 6, 8, 10\}$



$A \times A = \{(1, 2), (1, 3), (1, 4), (1, 5), (2, 1), (2, 3), (2, 4), (2, 5), (3, 1), (3, 2), (3, 4), (3, 5), (4, 1), (4, 2), (4, 3), (4, 5), (5, 1), (5, 2), (5, 3), (5, 4), (1, 1), (2, 2), (3, 3), (5, 5)\}$

$A \times A$

(1, 1) (2, 2) (3, 3) (5, 5)  
 (1, 2) (1, 3) (1, 4) (1, 5)  
 (2, 1) (2, 3) (2, 4) (2, 5)  
 (3, 1) (3, 2) (3, 4) (3, 5)  
 (4, 1) (4, 2) (4, 3) (4, 5)  
 (5, 1) (5, 2) (5, 3) (5, 4)  
 (5, 5)

$A \times A$

(9, 9)

$$B = \{1, 2, 7, 8, 9\}$$

$$B \times B = \{(1, 1), (1, 2), (1, 7), (1, 8), (1, 9), \\ (2, 1), (2, 2), (2, 7), (2, 8), (2, 9), \\ (7, 1), (7, 2), (7, 7), (7, 8), (7, 9), \\ (9, 1), (9, 2), (9, 7), (9, 8), (9, 9)\}$$

$$\begin{array}{l} (1, 1) \quad (1, 2) \quad (1, 7) \quad (1, 8) \quad (1, 9) \\ (2, 1) \quad (2, 2) \quad (2, 7) \quad (2, 8) \quad (2, 9) \\ (7, 1) \quad (7, 2) \quad (7, 7) \quad (7, 8) \quad (7, 9) \\ (9, 1) \quad (9, 2) \quad (9, 7) \quad (9, 8) \quad (9, 9) \end{array}$$

$$B \times B$$

$$A = \{1, 2, 3, 4, 5\}$$

$$B = \{1, 2, 7, 8, 9\}$$

$$A \times B = \{(1, 1), (1, 2), (1, 7), (1, 8), (1, 9), \\ (2, 1), (2, 2), (2, 7), (2, 8), (2, 9), \\ (3, 1), (3, 2), (3, 7), (3, 8), (3, 9), \\ (4, 1), (4, 2), (4, 7), (4, 8), (4, 9), \\ (5, 1), (5, 2), (5, 7), (5, 8), (5, 9)\}$$

$$\begin{array}{l} (1, 1) \quad (1, 2) \quad (1, 7) \quad (1, 8) \quad (1, 9) \\ (2, 1) \quad (2, 2) \quad (2, 7) \quad (2, 8) \quad (2, 9) \\ (3, 1) \quad (3, 2) \quad (3, 7) \quad (3, 8) \quad (3, 9) \\ (4, 1) \quad (4, 2) \quad (4, 7) \quad (4, 8) \quad (4, 9) \\ (5, 1) \quad (5, 2) \quad (5, 7) \quad (5, 8) \quad (5, 9) \end{array}$$

$$A \times B$$



$$B = \{1, 2, 7, 8, 9\}$$

$$A = \{1, 2, 3, 4, 5\}$$

$$B \times A = \{(1, 2), (1, 3), (1, 4), (1, 5), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (7, 1), (7, 2), (7, 3), (7, 4), (7, 5)\}$$

$$\begin{pmatrix} B \times C \\ C \times A \end{pmatrix}$$

$$B = \{1, 2, 7, 8, 9\}$$

$$C = \{2, 6, 8, 10\}$$

$$B \times C = \{(1, 2), (1, 6), (1, 8), (1, 10), (2, 2), (2, 6), (2, 8), (2, 10), (7, 2), (7, 6), (7, 8), (7, 10), (8, 2), (8, 6), (8, 8), (8, 10), (9, 2), (9, 6), (9, 8), (9, 10)\}$$

$$\begin{aligned} &(1, 2) (1, 6) (1, 8) (1, 10) \\ &(2, 2) (2, 6) (2, 8) (2, 10) \\ &(7, 2) (7, 6) (7, 8) (7, 10) \\ &(8, 2) (8, 6) (8, 8) (8, 10) \\ &(9, 2) (9, 6) (9, 8) (9, 10) \end{aligned}$$

$$B \times C$$

$$C = \{2, 6, 8, 10\}$$

$$A = \{1, 2, 3, 4, 5\}$$

$$C \times A = \{(2, 1), (2, 2), (2, 3), (2, 4), (2, 5), \\ (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), \\ (8, 1), (8, 2), (8, 3), (8, 4), (8, 5), \\ (10, 1), (10, 2), (10, 3), (10, 4), (10, 5)\}$$

$$\begin{array}{cccccc} (2, 1) & (2, 2) & (2, 3) & (2, 4) & (2, 5) \\ (6, 1) & (6, 2) & (6, 3) & (6, 4) & (6, 5) \\ (8, 1) & (8, 2) & (8, 3) & (8, 4) & (8, 5) \\ (10, 1) & (10, 2) & (10, 3) & (10, 4) & (10, 5) \end{array}$$

$$C \times A$$