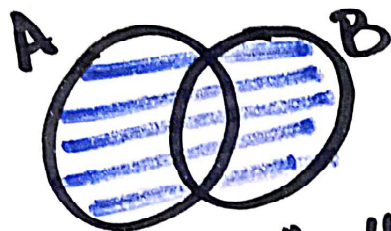


# Operaciones entre Conjuntos

$\forall : \sigma$

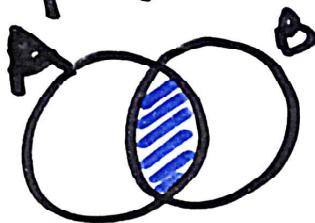
## • Unión "U"

$$A \cup B = \{x / x \in A \vee x \in B\}$$



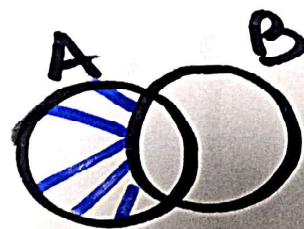
## • Intersección "∩"

$$A \cap B = \{x / x \in A \wedge x \in B\}$$

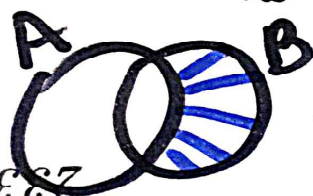


## • Diferencia "-"

$$A - B \rightarrow A \setminus B$$



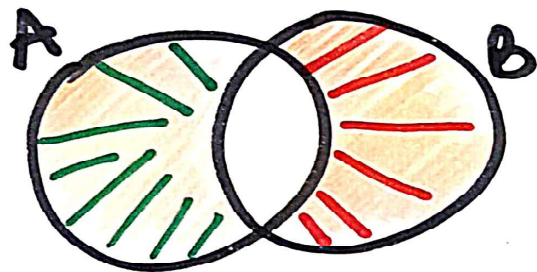
$$A - B = \{x / x \in A \wedge x \notin B\}$$



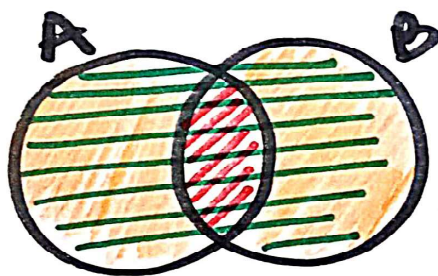
$$B - A = \{x \in B / x \notin A\}$$

• Diferencia Simétrica " $\Delta$ "

$$A \Delta B = (A - B) \cup (B - A)$$



$$A \Delta B = (A \cup B) - (A \cap B)$$



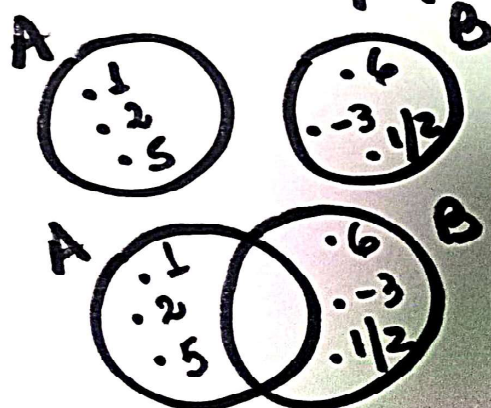
• Conjunto Disjuntos

$$A \cap B = \emptyset$$

$$A \cap B = \{ \}$$

✓  $A = \{1, 2, 5\}$

$$B = \{6, -3, \frac{1}{2}\}$$





# Algunas operaciones

- $A \cup A = A$

- $A \cup \emptyset = A$

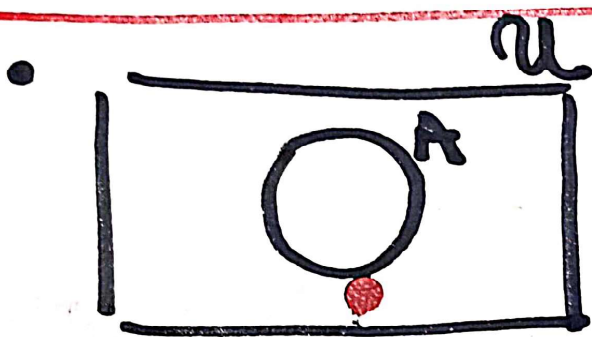
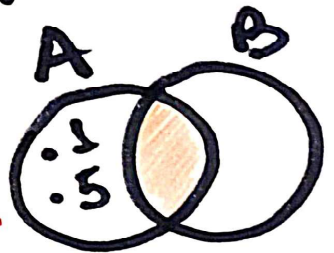
$$A = \{1, 5\} \quad B = \emptyset$$



- $A \cap \emptyset = \emptyset$

$$A = \{1, 5\}$$

$$B = \{ \}$$

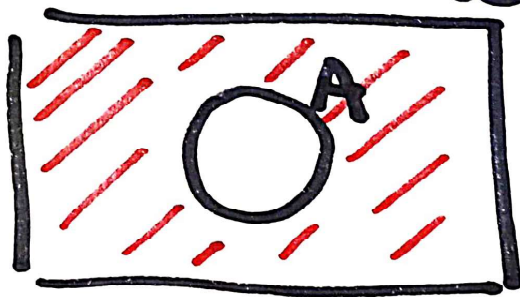


$$A \cup U = U$$

$$A \cap U = A$$

- $U - A = \bar{A}$

$\rightarrow$  Complemento de  $A$



$$\bar{A} = A^c$$

Ejemplo  $U = \mathbb{Z} \rightarrow$  *numeros enteros*

$\mathbb{Z}$  | position  
| negation  
| "0"

$$A = \{x \in \mathbb{N}_0 \mid x < 9\}$$

$$A = \{0; 1; 2; 3; 4; 5; 6; 7; 8\}$$

$$B = \{2; 3; 4; 5; 6\}$$

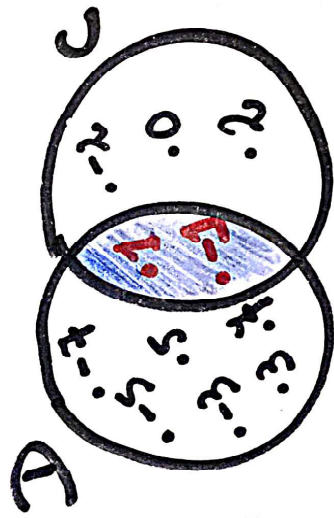
$$C = \{x \in \mathbb{Z} \mid x^2 < 9\}$$

$$C = \{-2; -1; 0; 1; 2\}$$

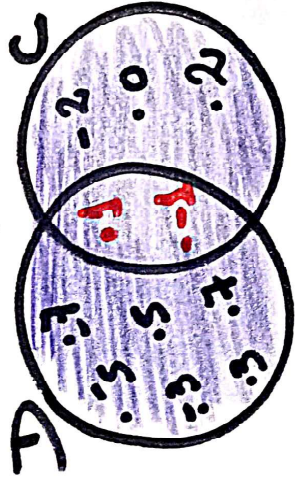
$$D = \{-7; -5; -3; -1; 1; 3; 5; 7\}$$



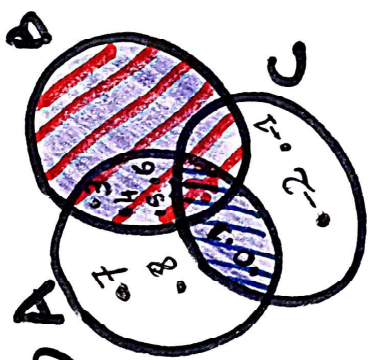
$$1) D_{NC} = \{1, -1\}$$



$$2) D_{UC} = \{-7, -5, 5, -3, 3, 7, 1, -1, -2, 0, 2\}$$

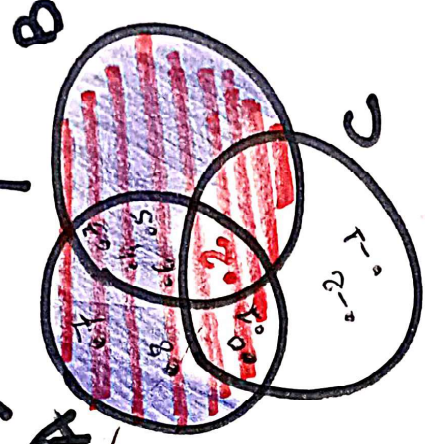


$$3) B_{U(ANC)} = A$$

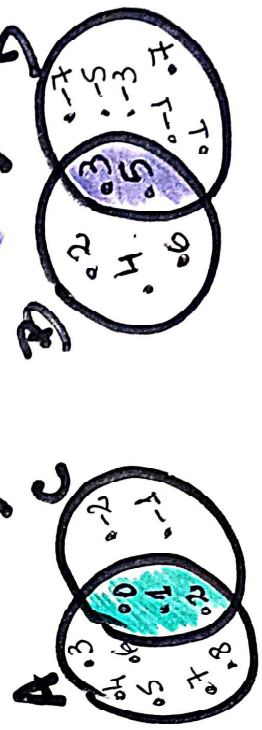


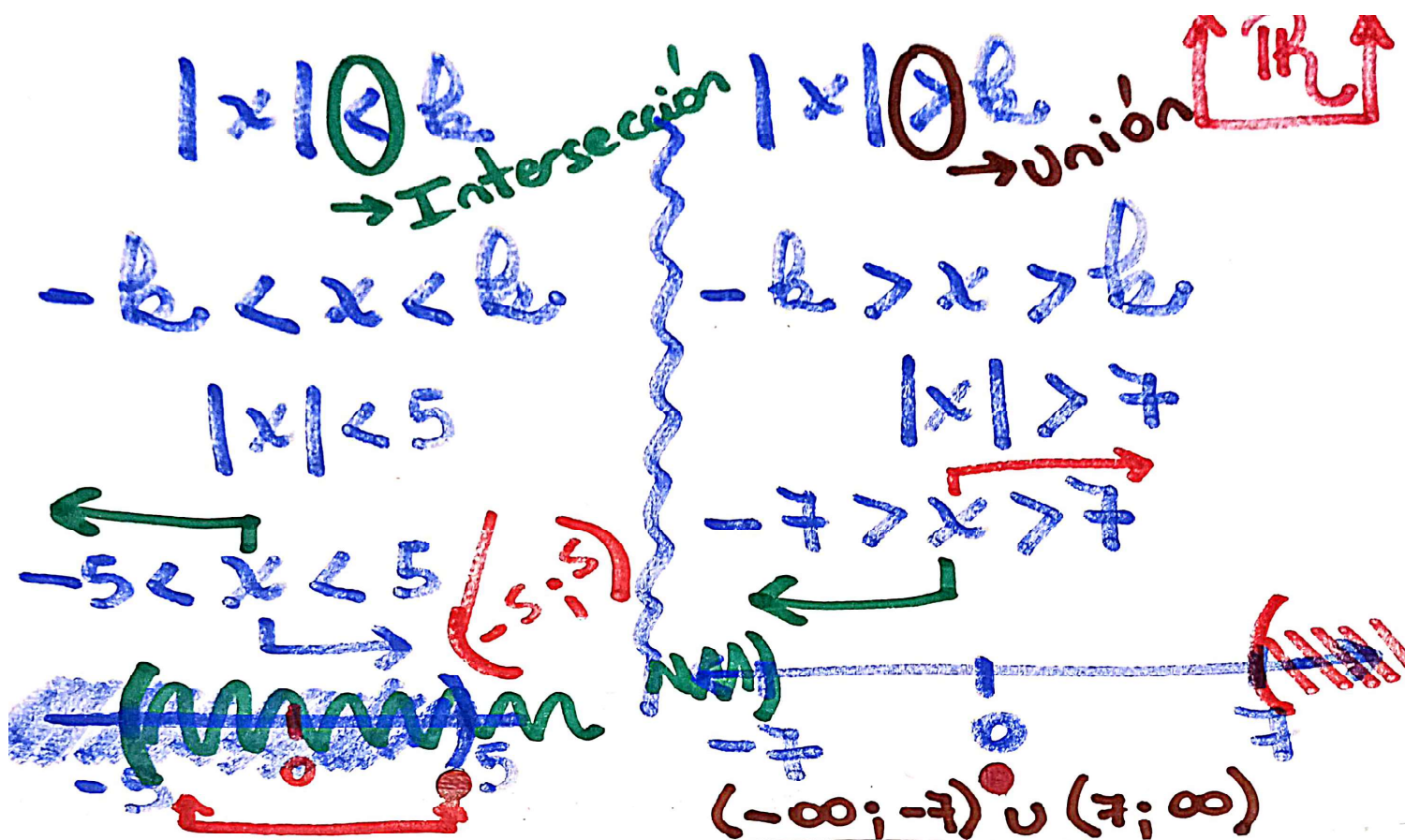
$$\{0, 1, 2, 3, 4, 5, 6\}$$

$$4) (A \cup B) - C = \{7, 8, 3, 6, 4, 5\}$$



$$5) (A \cap C) \cup (B \cap D) = \{0, 1, 2, 3, 1\}$$





$$C = \{x \mid x^2 < 9\}$$

$\uparrow$

$$x^2 < 9$$

$$|x| < \sqrt{9}$$

$$|x| < 3$$

$$-3 < x < 3$$

~~$$(-3; 3)$$~~

