

14 SEPTIEMBRE 2016

ÁLGEBRA DE LOS EVENTOS

ESPACIO MUESTRAL "S"

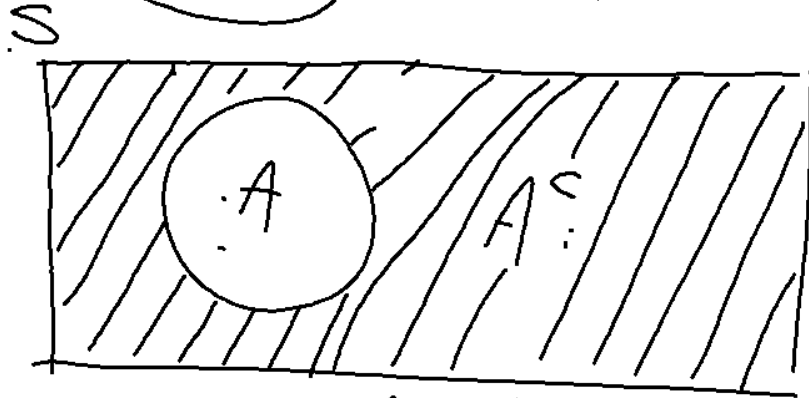
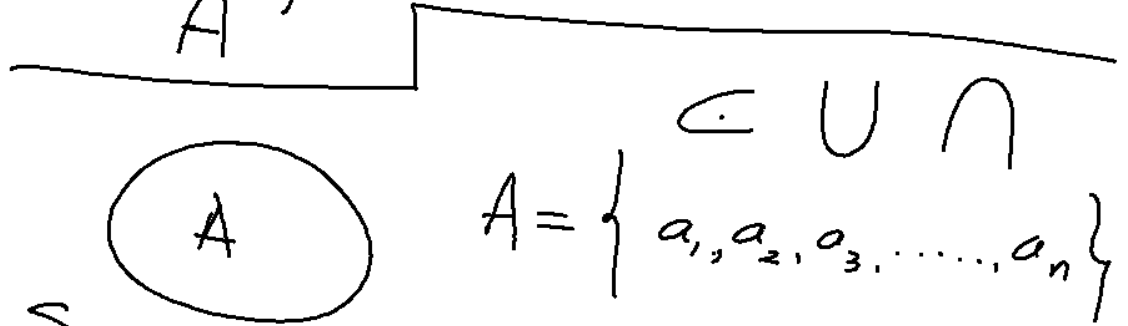
EVENTOS \rightarrow "A" "B" "C"

PUNTOS o EVENTOS SIMPLES: "a" "b" "c"

ESPACIO NULO: $\phi = \{ \}$

DIAGRAMAS DE VENN-EULER

A^c
 A } EVENTO COMPLEMENTO



$A \subset S$

$$\therefore S = A \cup A^c$$

$$A = \{7, 14, -3, 8, -16\} \left. \begin{array}{l} \text{finito} \\ \text{infinito} \end{array} \right\} \text{ numerables}$$

$$a_1 = 7 \quad a_2 = 14 \quad a_3 = -3 \quad a_4 = 8 \quad a_5 = -16$$

$$S = \{a_1, a_2, \dots, a_n\} \quad n \rightarrow \infty$$

$$\boxed{A=B} \quad A = \{x \mid x \text{ es vocal}\}$$

$$B = \{a, e, i, o, u\}$$
$$S = \{x \mid x \text{ el alfabeto español}\}$$

EVENTOS EXCLUYENTES

$$\boxed{A \neq B} \left\{ \begin{array}{l} A = \{x \mid x \text{ es vocal}\} \\ B = \{x \mid x \text{ es consonante}\} \end{array} \right.$$

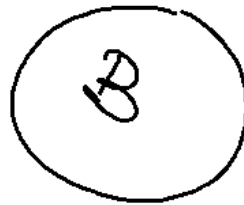
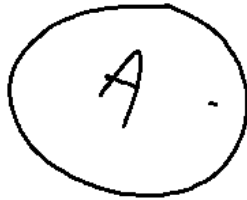
$$S = A \cup A^c$$

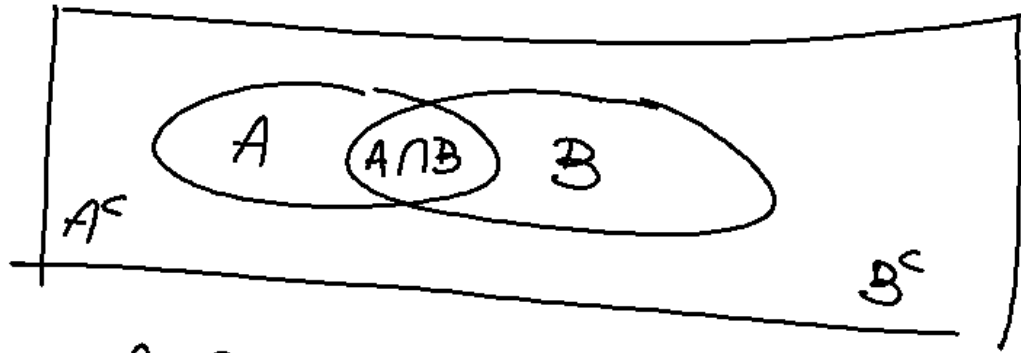
$$\boxed{A \neq A^c}$$

$$\downarrow \\ B = A^c$$

$$\boxed{A + B = A \cup B}$$

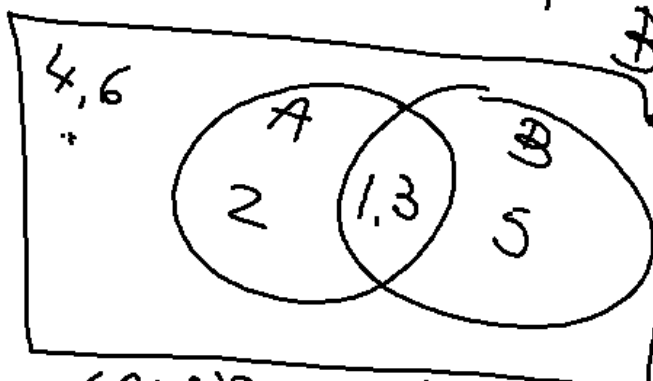
$$A \cap B = \emptyset$$





$$A + B = A \cup B - A \cap B$$

$S = \{1, 2, 3, 4, 5, 6\}$ $A = \{x \mid x < 4\}$



$B = \{x \mid x \text{ is odd}\}$

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

$B = \{1, 3, 5\}$

$A \cap B = \{1, 3\}$

$(A \cup B)^c = \{4, 6\}$

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

$$(A \cap B)^c = (A - B) \cup (B - A)$$

A y B no son excluyentes

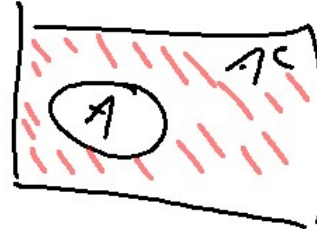
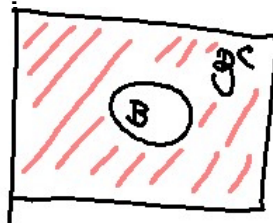
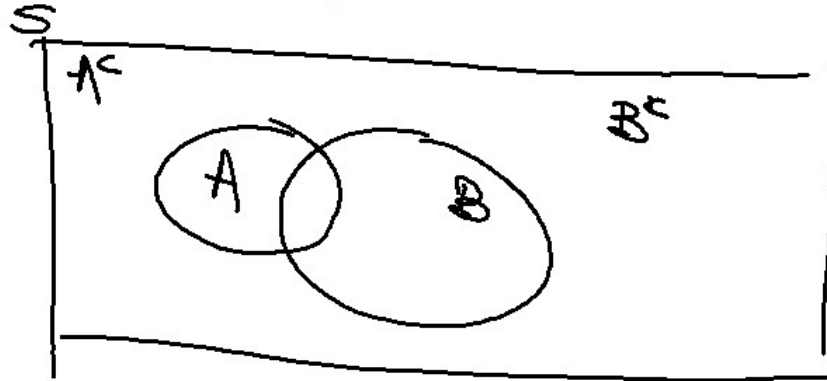


Dibuje A - B B - A en rojo

$$(A - B) \cup (B - A) = (A \cap B)^c$$

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

$$(A \cup B)^c = A^c \cap B^c$$



Leyes del álgebra de eventos

Leyes de idempotencia

$$A \cup A = A$$

$$A \cap A = A$$

Leyes asociativas

$$(A \cup B) \cup C = A \cup (B \cup C)$$

$$(A \cap B) \cap C = A \cap (B \cap C)$$

Leyes conmutativas

$$A \cup B = B \cup A$$

$$A \cap B = B \cap A$$

Leyes distributivas

$$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$$

$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

Leyes de identidad

$$A \cup \emptyset = A$$

$$A \cap S = A$$

$$A \cup S = S$$

$$A \cap \emptyset = \emptyset$$

Leyes de complemento

$$A \cup A' = S$$

$$A \cap A' = \emptyset$$

$$(A')' = A$$

$$S' = \emptyset, \quad \emptyset' = S$$

Leyes de De Morgan

$$(A \cup B)' = A' \cap B'$$

$$(A \cap B)' = A' \cup B'$$

$$P(A) = \frac{1}{6}$$

$$A = \{2\}$$

$$P(B) = \frac{1+1+1}{6}$$

$$= \frac{3}{6}$$

$$S = \{1, 2, 3, 4, 5, 6\}$$

$$B = \{x \mid x \text{ is par}\}$$