

3)

$$a) P(\emptyset) = 0$$

$$\emptyset = \Omega^c$$

El vacío es el complemento del espacio muestral Ω

Por tanto,

$$P(\emptyset) = P(\Omega^c)$$

• Aplicando la propiedad: $P(A^c) = 1 - P(A)$

$$P(\Omega^c) = 1 - P(\Omega)$$

La probabilidad de Ω es 1

$$P(\emptyset) = P(\Omega^c) = 1 - 1 = 0$$

$$P(\emptyset) = 0$$

b) $P(A^c) = 1 - P(A)$

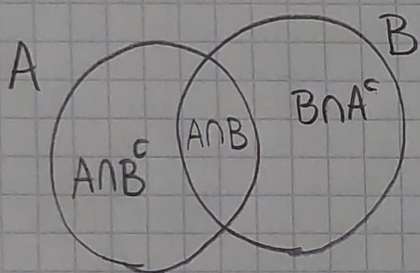
$$P(A) + P(A^c) = P(\Omega)$$

$$P(\Omega) = 1$$

$$P(A) + P(A^c) = 1$$

$$P(A^c) = 1 - P(A)$$

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



$$P(A) = P(A \cap B^c) + P(A \cap B)$$

$$P(B) = P(B \cap A^c) + P(A \cap B)$$

$$\rightarrow P(A) + P(B) = (P(A \cap B^c) + P(A \cap B)) + (P(B \cap A^c) + P(A \cap B))$$

$$P(A) + P(B) - P(A \cap B) = P(A \cap B^c) + P(B \cap A^c) + P(A \cap B)$$

$$\bullet P(A) = P(A \cap B) + P(A \cap B^c)$$

$$P(A) + P(B) - P(A \cap B) = P(A) + P(B \cap A^c)$$

$$\bullet P(A \cup B) = P(A) + P(B \cap A^c)$$

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