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

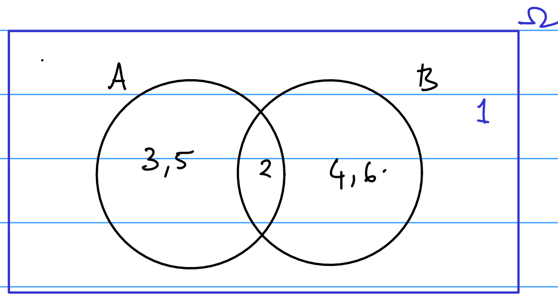
$A = \{2, 3, 5\} = \{n \in \Omega : n \text{ is prime}\}$. = Set of prime #s in Ω.

$B = \{n \in \Omega : 2 \mid n\}$ = Set of even #s in Ω.

$\{\{1\}, \{2\}, \{1, 2\}, \{\ \}\}$

Subsets. $A \subset B$ $\qquad \{1\} \subset \{1, 2\}$. $\qquad A \subset B$ if every elt of A is also an element of B.

$\{1, 2\} \subset \{1, 2\}$



$A = \{2, 3, 5\} \qquad B = \{2, 4, 6\}$.

$A \cup B = \{2, 3, 4, 5, 6\}. = \{n \in \Omega : n \text{ is prime} \overset{\text{OR}}{\vee} 2 \mid n\}$.

$A \cap B = \{2\} = \{n \in \Omega : n \text{ is prime} \overset{\text{AND}}{\wedge} 2 \mid n\}$

$A^c = \{4, 6, 1\} = \{n \in \Omega : !(n \text{ is prime})\}$.

$(A \cup B)^c = \{1\} = A^c \cap B^c$

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

$$A \times B = \{ (2, 2)\ (2, 4)\ (2, 6)$$
$$(3, 2)\ (3, 4)\ (3, 6)$$
$$(5, 2)\ (5, 4)\ (5, 6) \}.$$

Set of all subsets of $\{1, 2\} = \{\{1\}, \{2\}, \{1, 2\}, \{\ \}\} = 2^{\{1,2\}}$

(Power set of $\{1, 2\}$).

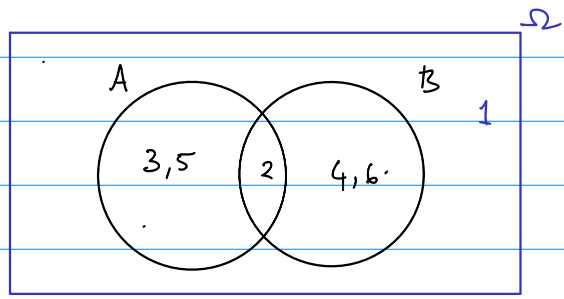
Function $\quad f : D \longrightarrow R$.

Indicator function of a set A $\quad \mathbb{1}_A : \Omega \to \{0, 1\}$.

$\Omega = \{1, 2, \ldots 6\} \qquad A = \{2, 3, 5\}$.

$\mathbb{1}_A(1) = 0 \quad \mathbb{1}_A(2) = 1 \quad \mathbb{1}_A(3) = 1 \quad \mathbb{1}_A(4) = 0 \quad \mathbb{1}_A(5) = 1 \quad \mathbb{1}_A(6) = 0$.

$f : \Omega \to \mathbb{R}$ $\qquad g : \Omega \to \mathbb{R}$ $\qquad fg$



$A = \{2, 3, 5\}$ $\qquad B = \{2, 4, 6\}$.

$\mathbb{1}_{A \cap B} = \mathbb{1}_A \mathbb{1}_B$.

$\mathbb{1}_{A^c} = 1 - \mathbb{1}_A$