Definition (Cartesian product of sets). Given two sets A, B, their *cartesian* product is denoted $A \times B$ and defined as

product is denoted
$$\mathbf{A} \times \mathbf{B}$$
 and defined as

 $\mathbf{A} \times \mathbf{B} = \{\langle x, y \rangle \mid x \in \mathbf{A} \text{ and } y \in \mathbf{B} \}.$