

Given two sets A and B, we define the set product of A and B, represented by $A \times B$, as the set

$$A \times B = \{(x, y) \mid x \in A \text{ and } y \in B\}$$

For example, $A = \{1, 2, 3\}$ and $B = \{a, b\}$, then

$$A \times B = \{(1, a), (1, b), (2, a), (2, b), (3, a)\} \text{ and } (3, b).$$