

## Theorem

If  $A_1 \subseteq A_2$  and  $B_1 \subseteq B_2$ , then

$$A_1 \times B_1 \subseteq A_2 \times B_2.$$

## Proof.

- Let  $(x, y) \in A_1 \times B_1$ .
- $x \in A_1 \implies x \in A_2$ .
- $y \in B_1 \implies y \in B_2$ .
- Then  $(x, y) \in A_2 \times B_2$ .

