

Cartesian Product

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Cartesian Product

- ▶ Let X and Y be sets.
- ▶ The **cartesian product** $X \times Y$ is the set whose elements are **all** of the ordered pairs of elements (x, y) where $x \in X$ and $y \in Y$.

Cartesian Product

- ▶ Let $X = \{a, b, c\}$
- ▶ Let $Y = \{0, 1\}$
- ▶ The cartesian product $X \times Y$ is therefore:

Cartesian Product

- ▶ Importantly $X \times Y \neq Y \times X$
- ▶ Recall: Let $X = \{a, b, c\}$ and let $Y = \{0, 1\}$
- ▶ The cartesian product $Y \times X$ is therefore:

Empty