Discrete Maths : Relations

- A relation R from a set A to a set B is a subset of the **cartesian product** A x B.
- Thus R is a set of **ordered pairs** where the first element comes from A and the second element comes from B i.e. (a, b)

Discrete Maths : Relations

- If $(a, b) \in R$ we say that a is related to b and write aRb.
- If $(a, b) \notin R$, we say that a is not related to b and write aRb. CHECK
- If R is a relation from a set A to itself then we say that "R is a relation on A".

Example

- Let $A = \{2, 3, 4, 6\}$ and $B = \{4, 6, 9\}$
- Let R be the relation from A to B defined by **xRy** if x divides y exactly.

Example

- Let $A = \{2, 3, 4, 6\}$ and $B = \{4, 6, 9\}$
- Let R be the relation from A to B defined by **xRy** if x divides y exactly.
- Then

$$R = (2, 4), (2, 6), (3, 6), (3, 9), (4, 4), (6, 6)$$