Partitions and Equivalence Relations

**Proposition:** Given a partition $B_1, \ldots, B_k$ on a set $A$, the blocks $B_i$ are the equivalence classes of some equivalence relation on $A$.

**Proposition:** The equivalence classes of a relation $R$ on $A$ form a partition of $A$.

Functions

**Definition:** A function $f$ from $A$ to $B$, denoted $f : A \to B$, is a relation on $A \times B$ such that $\forall a \in A$, there exists exactly one element $b \in B$ such that $(a, b)$ is in the relation.