

Equivalence Relations

Let A be a set and R be a relation on A .

R is reflexive on A iff for all $x \in A$, xRx .

R is symmetric iff for all x and $y \in A$, if xRy , then yRx .

R is transitive iff for all x, y , and $z \in A$, if xRy and yRz , then xRz .

A relation R on a set A is an equivalence relation on A iff R is reflexive on A , symmetric, and transitive.

Let R be an equivalence relation on a set A . For $x \in A$, the equivalence class of x determined by R is the set $x/R = \{y \in A : xRy\}$.