Section 8.3: Equivalence Relations

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May 19, 2022

In this section, the concept of **Equivalence Relation** on some set A is introduced. In short words, an **Equivalence Relation** on some set A is one that has is reflexive, symmetric and transitive. One of the best examples is the relation R defined by $x\ R\ y$ if $x = y$. Also, an important subset to understand the behavior of these type of relations is the **equivalence class**. Basically, an **equivalence class** $[a]$ contains all elements $x \in A$ that are related to some specific $a \in A$, namely,

$$[a] = \{x \in A : x\ R\ a\}$$

Note that if $b \in [a]$ (b is related to a), then b and a are "equivalent". Note that $a \in [b]$ and $[b] = [a]$ due to the symmetric and transitive properties of R. Quite interesting!!!