Definition [Equivalence classes]:

Let A be a non-empty set and R be an equivalence relation over A, i.e., $R \subseteq A \times A$. Let $x \in A$. Then, the equivalence class of x with respect to R is defined as follows:

$$[x]_R := \{a \in A : (a, x) \in R\}.$$

The set of all equivalence classes of R is denoted as

$$A/R := \{[x]_R : x \in A\}.$$

- Note that $A/R \subseteq \text{pow}(A)$.