



Definition

Given a set S , a *numbered partition* of S (or *labeled partition*) is a numbering of some partition of a S . In other words, a numbered partition (π_1, \dots, π_p) of S is such that

$$\{\pi_1, \dots, \pi_p\} \quad \text{partitions} \quad S$$

As before, π_i is called a *part* of the partition, for $i = 1, \dots, n$. In this case p is the *size* and $(|\pi_1|, \dots, |\pi_p|)$ is the *shape* of the numbered partition.

When we speak simultaneously of partitions (as defined in **Partitions**) and numbered partitions, we sometimes call a *partition* an *unnumbered partition* (or *unlabeled partition*, *allocation*). In this case, the *size* of a partition P of S is the multiset $m : \mathbf{N} \rightarrow \mathbf{N}$ defined so that $m(k)$ is the number of parts of size k in P .

