

## The Product Rule for Counting

If a procedure can be broken into  $k$  successively applied independent tasks and there are  $n_i$  ways to perform the  $i$ th task then there are  $n_1 n_2 \cdots n_k$  ways to do the procedure.

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## The Sum Rule for Counting

If a task can be performed in one of  $n_1$  ways or in one of  $n_2$  ways, where none of the set of  $n_1$  ways is the same as any of the set of  $n_2$  ways, then there are  $n_1 + n_2$  ways to perform the task.

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## The Relabelling Rule for Counting

If there is a bijection between two sets then the two sets have the same number of elements.

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