

## Combinatorics: Rule of Product

- Rule of product (multiplication principle)
- Cartesian product
- Cartesian plane
- Words over  $k$ -ary alphabet
- Permutations
- Arrangements of sequences (ordered subsets)
- Number of  $k$ -subsets ( $k$ -element subsets ) of an  $n$ -set ( $n$ -element set):  $\binom{n}{k}$  (read “ $n$  choose  $k$ ”)
- Discrete probability