MTH 224 1/23/23

→ Suppose an experiment with a finite number of equally likely outcomes

$$S = \{w_1, w_2 \ldots w_n\}$$

$$P(w_1) = P(w_2)$$

$$= P(w_n) = \frac{1}{n}$$

in such a sample space

$$P(A) = \frac{|A|}{|S|}$$

- Basic Multiplication

principle: Consider an operation with k consecutive steps.

step 1 can be done n_1 ways

step 2 can be done n_2 ways.

Total number of ways

to perform operation is

$$n_1 \cdot n_2 \cdot \ldots \cdot n_k$$

- permutation: an ordering of a collection of objects.

Number of permutations of N objects is $N!$

$$N! = N \cdot (N-1) \cdot (N-2) \cdot \ldots \cdot 1$$