

Student: _____

Group: _____

Lecturer: A.S. Eremenko

HOMEWORK 2

1. What is the fundamental principle of counting:
 - a) rule of sum;
 - b) rule of product;
 - c) divide-and-conquer approach;
 - d) partitions?
2. An ordered sequence of elements selected from a given finite set without repetitions is:
 - a) permutations;
 - b) combinations;
 - c) partitions;
 - d) multinomial coefficient.
3. The idea of “not doing some things at the same time” is the state of:
 - a) combinations;
 - b) rule of product;
 - c) rule of sum;
 - d) the Counting Principle.
4. The number of possible sequences is equal to $n!$. What is it?
 - a) multiset;
 - b) permutation;
 - c) k-permutation;
 - d) rule of sum.
5. A choice of k elements out of an n -element set without regard to order is:
 - a) a permutation;
 - b) a k-permutation;
 - c) a combination;
 - d) a partition.
6. Indicate, what is a special case of a partition of a set:
 - a) permutations;
 - b) combinations;
 - c) partitions;
 - d) k-permutations.
7. We use the multinomial coefficient for:

- a) partitioning in two subsets;
- b) obtaining the number of combinations with repetition;
- c) obtaining the number of combinations without repetition;
- d) partitioning in more than two subsets.

Problem 1

How many different numbers can be generated using six digits, if none of the digits are repeated?

Solution:

Problem 2

Burger Shack offers only one type of hamburger but seven different toppings. How many ways types of burgers can be created by choosing any four toppings?

Solution:

Problem 3

How many different ways can Jenny arrange her schedule of 6 classes?

Solution: