II) Combinatorial analysis 1°) Fundamental principle of combinatorial analysis: If any procedure can be represented in different ways, if after that procedure a second procedure can be represented in different ways and so on ... So the number of different ways to perform this procedure in the given order is: Example: A license plate contains two distinct Latin letters followed by two numbers, the first of which is non-zero. How many different plates can I print? Answer: For the first Latin letter there are 26 different ways to print it For the second Latin letter we have 25 different ways to print it For the first digit we have 9 different ways to print it For the second digit we have 10 different ways to print it For the third digit we have 10 different ways to print it According to the fundamental principle of combinatorial analysis, the number of plates to be printed is: plates. 2°) Permutation: Let E be a set of n elements, a permutation on E is an order on E Theorem: There are n! permutations on E Demo: To swap the first element we have n possibilities To swap the second element we have (n – 1) possibilities To swap the third element we have (n – 2) possibilities .... The total number of possibilities is 3°) Arrangement: An arrangement of k elements among n other elements is an order on k «elements chosen from these n elements noted by

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