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Permutation and Combinations

Basic Counting Principles

Disjunctive & Sequential Counting

The Basic Counting Principle is a rule used to count the total number of possible outcomes in a situation.

Counting mainly focus on Basic Counting Rule, the Permutation Rule, and the Combination Rule.

The Rules of Sum and Product

The Rule of Sum and Rule of Product are used to decompose difficult Counting Problems into Simple Problems. Disjunctive Sequential

(i) Sum Rule Principle:- Assume some event E can occur in m ways and a second event F can occur in n ways, and suppose both events cannot occur simultaneously. Then E or F can occur in m+n ways.

Example:- If 8 male teachers and 5 female teachers Teaching Maths then the student can choose Teachers in $8+5=13$ ways.

(ii) Product Rule Principle:- There is an Event E which can occur in m ways and, independent of this event, there is a second event F which can occur in n ways. Then combinations of E and F can occur in

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MN Ways.

Example In class There are 4 boys and 10 girls if a boy and a girl have to be chosen for the class monitor, the students can choose class monitor in 4×10= 40 ways.

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