

Theory Of Counting Permutation Combination Probability For Boards Jee Main

Counting, permutation, and combination are fundamental concepts in mathematics that play a crucial role in problem-solving and decision-making. These concepts are regularly tested in various competitive exams, including the JEE Main. Gaining a solid understanding of these topics can significantly improve your performance in the exams and enhance your overall mathematical abilities.

Counting

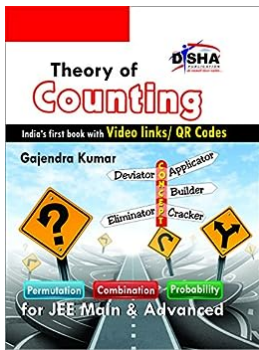
Counting is the process of determining the number of elements in a set or a group. It forms the foundation for more complex concepts like permutation and combination. Counting involves various techniques, such as:

- **Counting Principle:** The counting principle states that if there are 'm' ways to perform one task and 'n' ways to perform another task, then there are 'm x n' ways to perform both tasks together.
- **Factorial:** Factorial is denoted by the exclamation mark (!) and is the product of all positive integers less than or equal to a given number. For example, $5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$.
- **Complement Principle:** The complement principle states that if there are 'n' ways of doing something and 'm' ways of not doing it, then the total number of possible outcomes is 'n + m'.

Permutation

Permutation refers to the arrangement of objects in a specific order. The number of permutations of 'r' objects taken from a set of 'n' objects is denoted as $P(n, r)$.

Permutations can be calculated using different formulas, including:



Theory of Counting (Permutation, Combination & Probability) for Boards, JEE Main & Advanced

2015 by Lee Zaborowski ([Print Replica] Kindle Edition)

★★★★☆ 4 out of 5

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File size : 18490 KB

Screen Reader : Supported

Print length : 24 pages



- Permutation Formula without Repetition: $P(n, r) = n! / (n - r)!$
- Permutation Formula with Repetition: $P(n, r) = n^r$

In permutation with repetition, each object can be repeated multiple times. In permutation without repetition, each object can only be used once.

Combination

Combination refers to the selection of objects from a set without considering the order. The number of combinations of 'r' objects taken from a set of 'n' objects is denoted as $C(n, r)$. Combinations can be calculated using the formula:

- Combination Formula: $C(n, r) = n! / (n - r)! * r!$

Unlike permutations, the order of objects does not matter in combinations.

Probability

Probability is a branch of mathematics that deals with the likelihood of an event occurring. It is widely used in various fields, such as statistics, finance, and science. The probability of an event 'A' occurring can be calculated using the formula:

- Probability Formula: $P(A) = (\text{Number of favorable outcomes}) / (\text{Total number of possible outcomes})$

The concept of probability is closely related to counting, permutations, and combinations. Understanding these concepts allows us to calculate the probability of different events accurately.

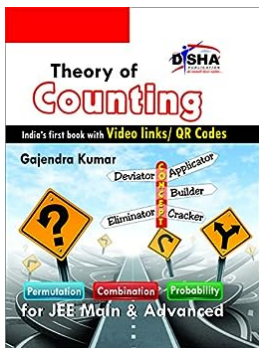
Application in JEE Main

The JEE Main is an important examination for students aspiring to pursue engineering in India. It tests the candidates' knowledge and understanding of various mathematical concepts, including counting, permutations, combinations, and probability. These concepts are often the basis for solving complex mathematical problems presented in the examination.

Strengthening your grasp of counting, permutations, combinations, and probability can help you excel in the JEE Main. It allows you to analyze and solve problems efficiently, boosting your overall score. By practicing these concepts and understanding their applications in the exam, you can enhance your chances of success.

The theory of counting, permutation, combination, and probability is crucial for excelling in mathematics and competitive exams like JEE Main. By understanding these concepts, you can approach problem-solving with confidence and accuracy. Remember to practice regularly and apply these concepts to real-world scenarios to solidify your understanding. With the right preparation, you can

tackle any question related to counting, permutations, combinations, and probability in the JEE Main with ease.



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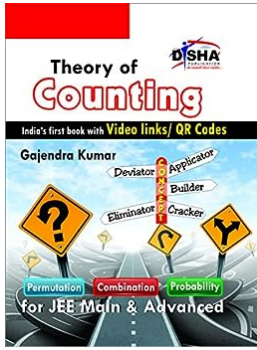


The book for JEE Main & Advanced 2015" delves deep into the basics of Permutation & Combination and Probability then advances into the IIT JEE level and ends up high with the International Maths Olympiad level. The book provides FREE video lecture links (prepared by the author) marked in each chapter. This will be a very useful ADD ON feature for the students who face any sort of problems in basic concepts and fundamentals.



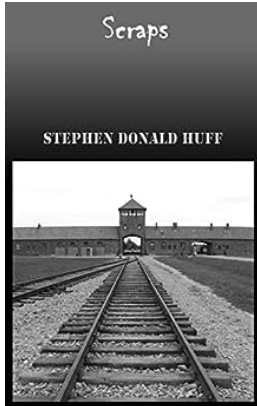
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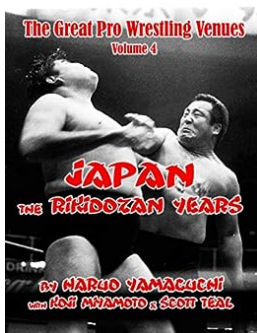
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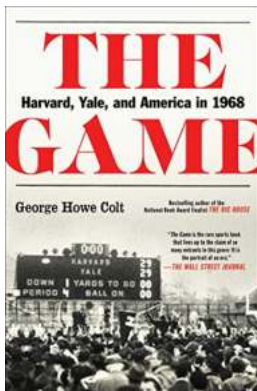
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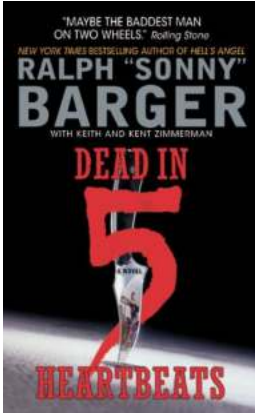
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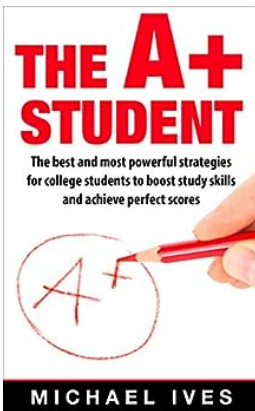
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