

CLASS 11

MATHS

EXTRA QUESTIONS

Class 11 Maths Chapter 6 Permutations and Combinations – Extra Questions with Answers

Extra practice questions for Class 11 Maths Chapter 6 (Permutations and Combinations), beyond the textbook. These Class 11 Maths Chapter 6 important questions are handy for last-minute exam practice.

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Very Short Answer Questions (1 mark)

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Class 11 Maths Chapter 6 – Solutions and Notes

Extra practice questions for Class 11 Maths Chapter 6 (Permutations and Combinations), beyond the textbook. These Class 11 Maths Chapter 6 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Evaluate $5!$.

Ans: $5 \times 4 \times 3 \times 2 \times 1 = 120$.

Q2. Find 5P_2 .

Ans: $5!/(5-2)! = 5!/3! = 120/6 = 20$.

Q3. Find 5C_2 .

Ans: $5!/[2!3!] = 120/[2 \times 6] = 10$.

Q4. In how many ways can 3 books be arranged on a shelf?

Ans: $3! = 6$.

Q5. Should choosing a committee of people use permutations or combinations?

Ans: Combinations, since order of selection doesn't matter for a committee.

Short Answer Questions (2–3 marks)

Q6. In how many ways can a President and a Vice-President be chosen from a group of 8 people (2 distinct roles)?

Ans: Since roles are distinct (order matters), use permutations: ${}^8P_2 = 8!/6! = 8 \times 7 = 56$.

Q7. From a group of 10 students, how many ways can a team of 4 be selected (no distinct roles)?

Ans: Since no roles distinguish the 4 members, use combinations: ${}^{10}C_4 = 10!/4!6! = 210$.

Q8. How many different 4-letter arrangements (with no repetition) can be made using the letters of the word "MATH"?

Ans: All 4 letters are distinct, so this is a straightforward permutation of all 4: $4! = 24$.

Higher-Order Thinking / Application Questions

Q9. A password must be exactly 4 digits long, using digits 0-9, with no digit repeated. Using the multiplication principle, find the total number of possible passwords, and explain why this matches the permutation formula.

Ans: Using the multiplication principle: first digit has 10 choices, second has 9 (one used), third has 8, fourth has 7: $10 \times 9 \times 8 \times 7 = 5040$. This matches ${}^{10}P_4 = 10!/6! = 5040$, because a permutation formula essentially counts exactly this kind of "choose without replacement, order matters" scenario.

Q10. Explain, using the relationship ${}^nP_r = {}^nC_r \times r!$, why choosing a 3-person committee from 6 people gives fewer possibilities than arranging 3 people (from the same 6) in 3 distinct chairs, and calculate both values to confirm.

Ans: 6C_3 (committee, order doesn't matter) $= 6!/3!3! = 20$. 6P_3 (arrangement in distinct chairs, order matters) $= 6!/3! = 120$. The committee count is smaller because each unique group of 3 people can be arranged in $3! = 6$ different orders as permutations, but all 6 of those orderings count as just ONE combination (one committee) — confirmed since $20 \times 6 = 120$, matching ${}^nP_r = {}^nC_r \times r!$.

Class 11 Maths Chapter 6 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Maths Chapter 6 Solutions](#) and [Class 11 Maths Chapter 6 Revision Notes](#).

See also: [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#)

Practice more: [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#)

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