

NCERT CHAPTER 7

Binomial Theorem

Binomial expansion, general term, numerical approximations, comparing large powers, and divisibility proofs.

🕒 Revision Time: 25 mins 🎯 Target: 4–6 Marks 📖 Textbook: [kcmh107.pdf](#)

⚡ Essential Formulas & Concept Summary

1. BINOMIAL EXPANSION FORMULA

$$(a + b)^n = \sum_{r=0}^n {}^nC_r a^{n-r} b^r = {}^nC_0 a^n + {}^nC_1 a^{n-1} b + \cdots + {}^nC_n b^n$$

$$\text{Total number of terms} = n + 1$$

2. SUM OF COEFFICIENTS

$${}^nC_0 + {}^nC_1 + {}^nC_2 + \cdots + {}^nC_n = 2^n$$

🎯 Top Expected Exam Questions (Step-by-Step Solutions)

Question 1: Divisibility Proof**4 Marks**

Prove that $6^n - 5n - 1$ is divisible by 25 for all $n \in \mathbb{N}$.

Question 2: Magnitude Comparison**3 Marks**

Which is larger: $(1.1)^{10000}$ or 1000?

 Exam Traps & Silly Mistakes **Trap 1: Number of Terms**

Expansion of $(a + b)^n$ has $n + 1$ terms, not n .

 Quick Self-Check

Quiz 1: How many terms in $(x + 2y)^7$?