BINOMIAL THEOREM **CM110701**

1. Find a, if the 17th and 18th terms in the expansion of $(2+a)^{50}$ are equal.

2. Using Binomial Theorem, evaluate $(99)^5$.

3. Find middle term in the expansion $(x^2 - yx)^{12}, x \neq 0$.

4. Find 10th term from end in the expansion $\left(2x^2 + \frac{1}{x}\right)^{12}, x \neq 0$.

5. Find middle term in the expansion $\left(x - \frac{1}{y}\right)^{10}, x, y \neq 0$.

6. Find middle term(s) in the expansion $(x^2 + a^2)^5$.

7. Find the term containing x^3 (if any) in expansion $\left(3x - \frac{1}{2x}\right)^8$.

8. Find coefficient of x^6y^3 in the expansion $(x + 2y)^9$.

9. Find the term independent of x in the expansion $\left(x^2 + \frac{1}{x}\right)^9$.

10. Using binomial theorem, prove that $2^{3n} - 7n - 1$ is divisible by 49, $n \in N$.