Worksheet: Binomial Theorem

Maharashtra State Board · Class 11 · Mathematics · 9 questions · 31 marks

Name: _____	Date: _____	Score: _____ / 31

Q1. Write down row 6 of Pascal's triangle, and state the value of $^6C_3$. *[2 marks]*

Q2. Expand (x - 1)^4 using the Binomial Theorem. *[2 marks]*

Q3. Expand (2x + 3)^5 using the Binomial Theorem. *[3 marks]*

Q4. Using the Binomial Theorem, evaluate (102)^4. *[4 marks]*

Q5. If the sum of the binomial coefficients in the expansion of (1+x)^7 is required, find its value. *[3 marks]*

Q6. Find the sum of the coefficients at the even positions ($^8C_0 + {}^8C_2 + {}^8C_4 + {}^8C_6 + {}^8C_8$) in the expansion of (1+x)^8. *[3 marks]*

Q7. Using the first three terms of its binomial expansion, find an approximate value of (1.01)^6. *[4 marks]*

Q8. Using the Binomial Theorem, show that 7^n - 6n - 1 is divisible by 36 for every positive integer n. *[5 marks]*

Q9. Find (x+1)^5 - (x-1)^5. Hence evaluate (3+1)^5 - (3-1)^5. *[5 marks]*