



QUESTION WORKBOOK

The binomial expansion

Sequences and series · Year 12–13

7 questions · 22 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 Evaluate 8C_3 without a calculator, showing the cancellation. [2]

A2 Write down the row of Pascal's triangle used for expanding a bracket to the power 5. [1]

SECTION B · Standard

B1 Expand $(3 + 2x)^4$ completely, and check your answer with a substitution. [5]

B2 Find the first three terms, in ascending powers of x , of $(1 + 3x)^8$. [3]

- B3** Find the first three terms, in ascending powers of x , of $(2 + x)^5$, and use them to estimate 2.002^5 . [5]

SECTION C · Stretch

- C1** In the expansion of $(2 + kx)^6$, where k is a constant, the coefficient of x^2 is 60. Find the possible values of k . [4]

- C2** Explain why the coefficients in any row of Pascal's triangle read the same forwards and backwards. [2]