

Binomial Expansion Exercise

1. Find the coefficient of the term in x^4 in the binomial expansion of $(3 + 2x)^7$.
(Total 3 marks)
2. Find the coefficient of x^3 in the binomial expansion of $(2 + 3x)^9$. Give your answer as an integer.
(Total 3 marks)
3. (a) Write down all the terms in the binomial expansion of $(1 - x)^5$.
(2)
(b) Find the coefficient of x^3 in the binomial expansion of $(3 - 2x)^5$. Give your answer as an integer.
(2)
(Total 4 marks)
4. Write down the expansion $(1 + x)^7$ in ascending powers of x up to and including the term in x^3 .
(3)
Hence determine the value of 1.00001^7 correct to 15 decimal places.
(2)
(Total 5 marks)
5. Find the binomial expansion of $\left(1 + \frac{1}{2}x\right)^{16}$ in ascending powers of x up to and including the term in x^3 .
(3)
Hence determine the coefficient of x^3 in the expansion of $(23 + 13x)\left(1 + \frac{1}{2}x\right)^{16}$.
(2)
(Total 5 marks)
6. (a) Write down the first four terms in ascending powers of x in the expansion of $(1 + x)^8$, Simplifying your coefficients as much as possible.
(2)
(b) Find the coefficient of x^3 in the expansion of $(3 - 2x)(1 + x)^8$.
(2)