

Advanced binomial expansion

1. (a) Expand $(x^2 + 1)^3$.

(b) Find the coefficient of x^2 in the expansion of $(x + 3)(x^2 + 1)^3$.

2. (a) Expand $(x^2 + 5)^2$. (b) Find the coefficient of x in the expansion of $(x + 1)(x^2 + 5)^2$. IBDP Mathematics (SL) Advanced binomial expansion



Paper 1 exercise

1. (a) Expand $(2 + x)^4$ and simplify your result. (b) Hence, find the term in x^2 in $(2 + x)^4(1 + \frac{1}{x^2})$.

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Paper 2 exercise

1. In the expansion of $ax^3(2 + ax)^{11}$, the coefficient of the term in x^5 is 11880. Find the value of a.



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2. (a) Find the term in x^6 in the expansion of $(x + 2)^9$. (b) Hence, find the term in x^7 in the expansion of $5x(x + 2)^9$.

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