



Binomial Expansion - Edexcel Past Exam Questions

1. Find the first three terms, in ascending powers of x , of the binomial expansion of $(3 + 2x)^5$, giving each term in its simplest form.

(4)

Jan 05 Q1

2. (a) Write down the first three terms, in ascending powers of x , of the binomial expansion of $(1 + px)^{12}$, where p is a non-zero constant.

(2)

Given that, in the expansion of $(1 + px)^{12}$, the coefficient of x is $(-q)$ and the coefficient of x^2 is $11q$,

- (b) find the value of p and the value of q .

(4)

June 05 Q4

3. (a) Find the first 3 terms, in ascending powers of x , of the binomial expansion of

$$(1 + px)^9,$$

where p is a constant.

(2)

The first 3 terms are 1, $36x$ and qx^2 , where q is a constant.

- (b) Find the value of p and the value of q .

(4)

Jan 06 Q2

4. Find the first 3 terms, in ascending powers of x , of the binomial expansion of $(2 + x)^6$, giving each term in its simplest form.

(4)

June 06 Q1

5. (a) Find the first 4 terms, in ascending powers of x , of the binomial expansion of $(1 - 2x)^5$. Give each term in its simplest form.

(4)

- (b) If x is small, so that x^2 and higher powers can be ignored, show that

$$(1 + x)(1 - 2x)^5 \approx 1 - 9x.$$

(2)

Jan 07 Q2



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6. (a) Find the first four terms, in ascending powers of x , in the binomial expansion of $(1 + kx)^6$, where k is a non-zero constant. (3)

Given that, in this expansion, the coefficients of x and x^2 are equal, find

- (b) the value of k , (2)
(c) the coefficient of x^3 . (1)

June 07 Q3

7. (a) Find the first 4 terms of the expansion of $\left(1 + \frac{x}{2}\right)^{10}$ in ascending powers of x , giving each term in its simplest form. (4)

- (b) Use your expansion to estimate the value of $(1.005)^{10}$, giving your answer to 5 decimal places. (3)

Jan 08 Q3

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8. (a) Find the first 4 terms, in ascending powers of x , of the binomial expansion of $(1 + ax)^{10}$, where a is a non-zero constant. Give each term in its simplest form. (4)

Given that, in this expansion, the coefficient of x^3 is double the coefficient of x^2 ,

- (b) find the value of a . (2)

June 08 Q3

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9. Find the first 3 terms, in ascending powers of x , of the binomial expansion of $(3 - 2x)^5$, giving each term in its simplest form. (4)

Jan 09 Q1

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10. (a) Find the first 3 terms, in ascending powers of x , of the binomial expansion of

$$(2 + kx)^7$$

where k is a constant. Give each term in its simplest form. (4)

Given that the coefficient of x^2 is 6 times the coefficient of x ,

- (b) find the value of k . (2)

June 09 Q2

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11. Find the first 3 terms, in ascending powers of x , of the binomial expansion of

$$(3 - x)^6$$

and simplify each term.

(4)

Jan 10 Q1

12. (a) Find the first 4 terms, in ascending powers of x , of the binomial expansion of $(1 + ax)^7$, where a is a constant. Give each term in its simplest form.

(4)

Given that the coefficient of x^2 in this expansion is 525,

(b) find the possible values of a .

(2)

June 10 Q4

13. Given that $\binom{40}{4} = \frac{40!}{4!b!}$,

(a) write down the value of b .

(1)

In the binomial expansion of $(1 + x)^{40}$, the coefficients of x^4 and x^5 are p and q respectively.

(b) Find the value of $\frac{q}{p}$.

(3)

Jan 11 Q5

14. (a) Find the first 3 terms, in ascending powers of x , of the binomial expansion of

$$(3 + bx)^5$$

where b is a non-zero constant. Give each term in its simplest form.

(4)

Given that, in this expansion, the coefficient of x^2 is twice the coefficient of x ,

(b) find the value of b .

(2)

June 11 Q2
