

Topic: Binomial Expansion

- 1
 - (i) Find, in ascending powers of x , the first four terms in the expansion $(1-3x)^7$. [2]
 - (ii) Hence, obtain the coefficient of x^2 in the expansion of $\left(2x + 3 - \frac{7}{5x}\right)(1-3x)^7$. [2]

- 2
 - (i) Write down the first three terms in the expansion, in ascending powers of x , of $(1+2x)^6$. [2]
 - (ii) If $(3-x)(1+2x)^6 = 3 + ax + \frac{1}{2}bx^2 + \dots$, find the values of a and b . [3]

- 3
 - (i) Find the first 3 terms in the expansion, in ascending powers of x , of $(2-3x)^7$. [2]
 - (ii) Hence, estimate the value of $(1.997)^7$, leaving your answer to 2 decimal places. [2]

- 4 Find the term independent of x in the binomial expansion of $\left(2x^2 - \frac{1}{x}\right)^{12}$. [4]

- 5 Find the constant term in the expansion of $\left(4x^3 - \frac{3}{x^2}\right)^5$. [4]

- 6 The term independent of x in the binomial expansion of $\left(x^3 + \frac{a}{x^2}\right)^{10}$ is 210. Find the values of a . [4]

- 7 The coefficients of x and x^2 in the binomial expansion of $(3 + 2x)^n$ are equal.
- (i) Find the value of n . [3]
- (ii) Hence find the coefficient of x^2 in the expansion of $\left(2x - \frac{1}{x}\right)(3 + 2x)^n$ [2]

Answer Key

1(i)	$1 - 21x + 189x^2 - 945x^3 + \dots$
1(ii)	1848
2(i)	$1 + 12x + 60x^2 + \dots$
2(ii)	$a = 35, b = 336$
3(i)	$128 - 1344x + 6048x^2 + \dots$
3(ii)	126.66
4	7920
5	-4320
6	1, -1
7(i)	$n = 4$
7(ii)	336