4.1 Binomial Expansion

Question Paper

Course	Edexcel IAL Maths: Pure 2
Section	4. Sequences & Series
Topic	4.1 Binomial Expansion
Difficulty	Medium

Time allowed: **50**

Score: **/40**

Percentage: **/100**

Question 1

Expand $(2 + x)^4$.

[3 marks]

Question 2

Find the coefficient of the term in x^3 in the expansion of $(2 - x)^8$.

[3 marks]

Question 3

(a) Find the first three terms, in ascending powers of x, in the expansion of $(3 + x)^4$.

[3 marks]

Question 3

(b) Use your answer to part (a) to estimate $(3.1)^4$.

[2 marks]

Question 4

In the expansion of $(a - x)^4$, the coefficient of the x^2 term is 96.
Given that $a > 0$, find the value of a.

[2 marks]

Question 5

(a) Find the first three terms in the expansion of $(9 - 2x)^5$.

[3 marks]

Question 5

(b) Use your answer to part (a) to estimate $(8.9)^5$.

[2 marks]

Question 6

In the expansion of $(a - 2x)^5$, the coefficient of the x^2 term is equal to the coefficient of the x^3 term. Find the value of a.

[4 marks]

Question 7

In the expansion of $(3 + px)^6$, the coefficient of the x^4 is four times the coefficient of the x^2 term. Find the possible values of p.

[3 marks]

Question 8

(a) Find the first three terms in the expansion of $(3 + 2x)^8$.

[3 marks]

Question 8

(b) Given that x is small such that x^3 and higher powers of x can be ignored show that

$$(1+x)(3+2x)^8 \approx 6561 + 41553x + 116640x^2$$

[3 marks]

Question 9

In the expansion of $(p+qx)^5$, the coefficients of the x^2 term and the x^3 term are equal.

Find p in terms of q.

[4 marks]

Question 10

In the expansion of $(a + bx)^4$, the coefficient of the x^2 term is equal to the coefficient of the x^3 term.

(a) Show that $\frac{a}{b} = \frac{2}{3}$.

[3 marks]

Question 10

(b) Given that a and b are integers, and that $10 < b < 15$, find the values of a and b.

[2 marks]