(70) *(a)* Expand $(a + b)^4$. Hence expand $\left(3x - \frac{1}{3x}\right)^4$, simplifying each term of the expansion. [4]

(b) The coefficient of x^2 in the expansion of $(1 + 2x)^n$ is 40. Given that n is a positive integer, find the value of n. [2]

June 06

(71) *(a)* Expand $(a + b)^4$, simplifying your coefficients as much as possible. [2]

(b) Solve $(2 + x)^4 = 14 + 33x + 25x^2 + 8x^3 + x^4$. [4]

Jan 07

(72) *(a)* Expand $(a + b)^5$. Hence find the coefficient of x in the expansion of $\left(x + \frac{1}{2x}\right)^5$. [4]

(b) The coefficient of x^2 in the expansion of $(1 + x)^n$ is 36. Given that n is a positive integer, find the value of n. [3]

June 07

(73) *(a)* Expand $(a + b)^5$. [2]

(b) (i) Write down the first four terms in the expansion of $\left(1 + \frac{x}{2}\right)^5$ in ascending powers of x.

(ii) By substituting an appropriate value for x in (i), find an approximate value for $1{\cdot}05^5$. Show all your working and give your answer correct to three decimal places. [5]

Jan 08

(74) Use the binomial theorem to expand $(5 + 2x)^3$, simplifying each term of your expansion. [3]

June 08

(75) *(a)* Expand $(a + b)^5$. [2]

(b) Use your answer to part *(a)* to find the coefficient of x^3 in the expansion of $\left(\frac{1}{4} + 2x\right)^5$.

Simplify your answer. [2]

Jan 09

(76) *(a)* Expand $\left(x + \frac{2}{x}\right)^4$, simplifying each term of the expansion. [4]

(b) The coefficient of x^2 in the expansion of $(1 + x)^n$ is 55. Given that n is a positive integer, find the value of n. [3]

June 09

(77) In the binomial expansion of $(a + 3x)^5$, the coefficient of the term in x^2 is eight times the coefficient of the term in x. Find the value of the constant a. [4]

Jan 10