

1. When $\left(1 + \frac{x}{2}\right)^n$, $n \in \mathbb{N}$, is expanded in ascending powers of x , the coefficient of x^3 is 70.
- (a) Find the value of n . (5)
- (b) Hence, find the coefficient of x^2 . (1)
- (Total 6 marks)**
2. Determine the first three terms in the expansion of $(1 - 2x)^5 (1 + x)^7$ in ascending powers of x . (Total 5 marks)
3. (a) Write down the quadratic expression $2x^2 + x - 3$ as the product of two linear factors. (1)
- (b) Hence, or otherwise, find the coefficient of x in the expansion of $(2x^2 + x - 3)^8$. (4)
- (Total 5 marks)**