

4 (a) Find and simplify the first three terms in the expansion, in ascending powers of x , of $\left(2 + \frac{1}{3}kx\right)^6$, where k is a constant. **[3]**

(b) In the expansion of $(3 - 4x)\left(2 + \frac{1}{3}kx\right)^6$, the constant term is equal to the coefficient of x^2 .

Determine the exact value of k , given that k is positive. **[3]**