

3 The function $f(x)$ is given by $f(x) = (1 - ax)^{-3}$, where a is a non-zero constant. In the binomial expansion of $f(x)$, the coefficients of x and x^2 are equal.

(a) Find the value of a . **[3]**

(b) Using this value for a ,

(i) state the set of values of x for which the binomial expansion is valid, **[1]**

(ii) write down the quadratic function which approximates $f(x)$ when x is small. **[1]**