

**8** The number  $K$  is defined by  $K = n^3 + 1$ , where  $n$  is an integer greater than 2.

**(a)** Given that  $n^3 + 1 \equiv (n + 1)(n^2 + bn + c)$ , find the constants  $b$  and  $c$ . **[1]**

**(b)** Prove that  $K$  has at least two **distinct** factors other than 1 and  $K$ . **[5]**