

# Irreducible

Let  $p$  be a prime number such that

1.  $p = \gcd(a, b)$
2.  $p^2$  is a divisor of  $a$

Prove that the polynomial  $x^{n+2} + ax^{n+1} + bx^n + a + b$  cannot be decomposed into the product of two polynomials  $f(x), g(x) \in \mathbb{Z}[x]$ , with  $\deg f(x) > 1$ ,  $\deg g(x) > 1$ .