Either answer questions 1 and 2 or just answer question 3.

1. Find the greatest common divisor \( d(x) \) of \( x^6 - 1 \) and \( x^4 - 1 \) and find polynomials \( a(x), b(x) \) so that
\[
d(x) = a(x)(x^6 - 1) + b(x)(x^4 - 1).
\]

2. Prove that a complex polynomial of the form \( a_0 + a_1x^n + a_2x^{n_2} \) has at most 2 positive roots.

3. Let \( x_0 \in \mathbb{C} \) be a root of the complex polynomial \( x^n + a_1x^{n-1} + \cdots + a_n \). Prove that for any \( \epsilon > 0 \) there exists a \( \delta > 0 \) such that if \( |a_i - a'_i| < \delta \) for \( i = 1, 2, \ldots, n \) then the polynomial \( x^n + a'_1x^{n-1} + \cdots + a'_n \) has a root \( x'_0 \) such that \( |x_0 - x'_0| < \epsilon \).