Linear Factorization of Polynomials

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Find all the zeros of the function and write the polynomial as a product of linear factors.

1. \( f(x) = x^4 - x^3 - 5x^2 + 3x + 6. \)

2. \( f(x) = x^4 + x^3 - 11x^2 - 5x + 30. \)
3. \( f(x) = x^4 + x^3 - 8x^2 + 2x + 4. \)

4. \( f(x) = x^3 - x^2 + x - 1. \)

5. \( * f(x) = x^5 - 3x^4 + 4x^3 - 4x^2 + 3x - 1. \)