

MATH 114 - Reading Assignment 17 - Section 3.7 - Spring 2008

Hello, my name is _____

1. **True** or **False**: Every complex polynomial function of degree $n \geq 1$ has at least one real zero.
2. **True** or **False**: Every complex polynomial function of degree $n \geq 1$ can be factored into n linear factors of the form $a_n(x - r_1) \cdots (x - r_n)$, where a_n, r_1, \dots, r_n are complex numbers.
3. If $f(x)$ is a polynomial with real coefficients and $r = 2 + 3i$ is a zero of f , what other complex number is also a zero of f ? _____
4. **True** or **False**: Every polynomial with real coefficients of odd degree has at least one real zero.
5. Follow Example 1. A polynomial of degree 4 has zeros of $-1 - i$ and $-4i$. Find the other two zeros.

6. Follow Example 2. Find a polynomial f of degree 5 whose coefficients are real numbers and that has zeros of -2 , $3 + 4i$, and $2i$. You may leave your answer in factored form; you do not need to multiply the polynomial out. (In example 2, the first step is $f(x) = (x - 1)(x - 1)(x - (-4 + i))(x - (-4 - i))$. This is what I mean by factored form. You do not need to carry out the rest of the steps.)