Class Discussion

Unit 2 Topic 5 Part 1 Fundamental Theorem of Algebra

Fundamental Theorem of Algebra

If $f(x) = a_n x^n + a_{n-1}x^{n-1} + a_{n-2}x^{n-2} + \ldots + a_3 x^3 + a_2 x^2 + a_1 x + a_0$ and $n > 0$, then $f(x)$ has at least one zero on the complex plane.

What does this theorem says is also that

$f(x) = a_n (x - c_1)(x - c_2)\cdots(x - c_n)$, where c_i are complex numbers

Ex1: Find all zeroes

1. $x^4 + 37x^2 + 36 = 0$

2. $x^3 - 16x^2 + 84x - 174 = 0$