

MTH 30 LECTURE NOTES (Ojakian)

Topic 13: More on Polynomials

OUTLINE

(References: 3.4, 3.6 (parts!))

1. More on polynomials
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1. Recall Complex Numbers

- (a) Definition and calculation.
- (b) Polynomial with i
- (c) Complex factors.

2. Recall FTA

- (a) One statement: A polynomial of degree n has at most n roots.
- (b) Fuller statement: A polynomial of degree n factors into n linear factors (if complex numbers are allowed).
Examples: $x^2 - 9$ and $x^2 + 9$ and larger by giving factors.
- (c) Theorem about factor corresponds to root (via “Division Algorithm”)
From factorization determine all roots, and number of intercepts.

3. Multiplicity of roots