

Project 1

(due by 12/21/05 – 10:30am)

Discuss the problem below in a concise and precise essay, at most 5 typed pages long. Whenever you use a reference, quote it and do not copy. Use your own words.

Find and describe a reasonably complete *elementary* proof of the Fundamental Theorem of Algebra stated as 4.7 on page 67 of the text. Here *elementary* means that no advanced complex analysis tools like Liouville's Theorem should be used. But basic facts from calculus or the topology of the plane can be (and may have to be) exploited. Consult the following online references, and find further sources there or elsewhere:

<http://www.cut-the-knot.org/fta/vaggione.shtml>

http://en.wikipedia.org/wiki/Fundamental_theorem_of_algebra

<http://www.math.binghamton.edu/paul/papers/LoyaFTA.pdf>

<https://www.math.rutgers.edu/~sussmann/papers/fundamental-theorem-algebra-503.pdf>

<http://www.maa.org/pubs/cmjletters.html>

In particular, look at the books by Rudin and Spivak quoted above, as well as the article by Fefferman.