Math 1560, Project  
Due Thursday April 7th, noon  
Late assignments will not be accepted

Instructions:

• The goal of this project is
  ◦ read mathematical literature on your own;
  ◦ learn how to write mathematics.

• It is important that you do most of this project on your own. It is fine if you talk to
  your fellow students about proofs, but the final selection of what will be included in
  your project and how to write it up should be done by you and you alone.

• Your project should be easily readable by me. In practice that means that typing is
  best, although neatly handwritten is acceptable. Spelling and grammar of course count,
  so be sure to proofread your work before handing it in.

• Please keep your project under 7 pages. It need not be very long, 2 pages full of brilliance
  is better than 5 pages full of nonsense!

The actual project:

Look up a few proofs for special cases of Fermat’s Last Theorem ($x^n + y^n = z^n \Rightarrow xyx = 0$) 
and write them up in your own words. The choice of which cases to include is yours, as are
the proofs you want to do. I would suggest taking $n = 3, 4$ at least and ask you to think
about $n = 5$. (For the latter, you may use that the ring $\mathbb{Z}[\zeta_5]$ is a principal ideal domain.)
Other choices are fine, too. Make sure that you properly refer to the text(s) you’re using.

Please turn the project into a very short paper: include an introduction, explain theory
you need in a proof, give a bibliography, etc.

Let me stress that your grade does not really depend on the number of proofs that you
do. Rather, the way you explain everything is important.

Warning:

It is imperative that you completely understand the proofs you’re explaining in the paper.
If, while reading your project, I wonder if you understand what you’re doing, then I will
simply ask you to present that particular proof in class to your fellow students and I will
then ask the questions that were raised while reading the project. Needless to say, you
want to avoid this. Hence, I am always available for help if you want to include proof X
but are stuck at a certain point.