WRITING UP HOMEWORK SOLUTIONS

Here are a few thoughts to keep in mind when you write up your HW problems.

(1) Please turn in a neat stapled stack of papers.

(2) What you actually hand in, your final finished version, should be as polished as you can make it. This probably means that you will have previously written up at least sketchy solutions. Please expect to do a fair amount of *rewriting*.

(3) Please write using complete sentences which form paragraphs and so forth. I find it best to avoid long complicated sentences.

(4) Please minimize the use of special mathematical notation. For example, the symbols $\forall$, $\exists$, $\therefore$, etc. are not appropriate in the middle of a sentence. (These are suitable in 'displayed' information.)

(5) Please provide a statement clearly indicating precisely what it is that you are about to prove. You can, if you want, label your statement as a <u>Theorem</u> or <u>Claim</u> or whatever. Write the word <u>Proof</u>, and then give your proof. Throughout your proof, constantly tell the reader (me!) exactly what it is that you are about to demonstrate. Be sure to indicate the end of your proof. (I like to use a symbol such as $\square$.)

(6) Your proof should combine "logic", your hypotheses, and possibly other mathematical facts into an argument which establishes the asserted conclusion. Do *not* use a 'proof by contradiction' when you are actually doing a contrapositive argument. (The contrapositive of "$P \implies Q$" is "not $Q \implies$ not P"). In a true 'proof by contradiction' of "$P \implies Q$", one starts with the hypotheses "P and not Q" and then one deduces a contradiction such as 1=0.

(7) Please be extra careful about the order in which you use your quantifiers. Many many mathematicians (myself included) are careless and we write such things as "$\ldots a \in A_n$ for all $n \in \mathbf{N}$", but this is nonsense.