

Some proof writing tips (for HW and in general)
by Chelsea Walton

Tense:

- Mathematics is written in either passive voice or in first person plural.

Appearance:

- Skip lines between problems and parts of problems.
- But proofs aren't computer code. There's no need to put one sentence per line.
- **See textbooks for examples of how to write proofs** in "paragraph mode". The key is that you want to make this easy on the eyes. Avoid bad line breaks (e.g. splitting equations between lines), and display equations that take more than 1/2 of the line.
- Don't use contractions. (I can here because this is not a proof. Ha!)
- Avoid symbols (e.g. "forall", "there exists", "contradiction", etc.) and abbreviations ("iff", "st") while in paragraph mode. However, a box or something indicating q.e.d. is okay.

Starting sentences:

- Do not start sentences with mathematical notation.

Some of you are aware of this and, as a result, are card-carrying members of #TeamThen or #TeamSo or #TeamTherefore. (I was certainly on #TeamThus for quite some time.) To remedy this, here's a list of 20 words and phrases that you can use to begin/ break up sentences in your proofs.

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|---------------|-------------------------------|
| • Here, | • We see that |
| • Take | • We have that |
| • Consider | • We get that |
| • Considering | • We obtain |
| • Let | • Observe that |
| • Moreover, | • We employ |
| • Further, | • With |
| • Put | • Using |
| • Note that | • We use |
| • Notice that | • Continuing in this fashion, |

So, let's avoid "Then [...]. Then [...]. Then [...]" or "So [...]. So[...]. So [...]" or "Therefore [...]. Therefore [...]. Therefore [...]."