

Some basic guidelines for writing proofs.

1. Use proper written English, complete sentences, and proper punctuation.

2. Avoid beginning sentences with a symbol. For example,

f is a differentiable function. Therefore, f is also continuous.

looks bad.

We know f is a differentiable function. Therefore f is also continuous.

looks much better.

3. Do not use the personal pronouns "I" or "me". No mathematician would write

I will show that d is divisible by 3.

Instead, something like

We show that d is divisible by 3.

is acceptable.

4. Use logical symbols judiciously. For instance, the use of the logical symbol below is wholly unnecessary.

We prove that S compact $\Rightarrow S$ is closed and bounded.

Instead,

We prove that if S is compact then S is closed and bounded.

is much better.

5. Always quantify statements if there is any shred of doubt. If you write

The equation $2d = 3$ has no solution,

with no prior explanation as to what d is supposed to be, the person reading the proof may (understandably) become confused. On the other hand, if in the context of the proof, d is known to be an integer,

Since d is assumed to be an integer, the equation $2d = 3$ has no solution,

removes this confusion.

6. Do not invent your own notation. Mathematicians all use the same notation for good reason.

7. Use the words "clear", "obvious", and "similar" with great care. Part of an argument which appears to be similar to something done before might not be similar at all on closer inspection. "Clear" should refer to statements which are immediate to anyone with a level-appropriate knowledge of the subject at hand. People will disagree on the use of "obvious"; some say it's a rather pejorative word, while some say it's just telling it like it is, but if you label something as obvious, it had better not be false.