

What is mathematics?

Mathematics is a science of conjecture and proof leading to truths and facts regarding quantity and structure.

Mathematics is like a puzzle:

First, you need all the pieces, and then you must figure out how they fit together.

Mathematics is a language:

Letters lead to words, and words are given definitions that the users agree to. Words are used to construct meaningful, logical sentences. If used correctly, there will be very little ambiguity.

What is a “proof”?

A proof is a convincing argument made up of true statements.

A perfect proof will have no ambiguity, and there will be no doubt about its correctness.

Issues that cause ambiguity and/or doubt:

- Determining if a statement is ‘true’ or ‘false’ is not always easy.
- “Obvious” means different things to different people.
- When do we know if sufficient detail has been provided?

Resolving these issues:

- Your proofs should have enough detail to convince yourself and ALL of your classmates. It should also convince me that you know what you are saying.
- If you must think a thought to make a logical step, then you should probably write that thought.
- If you have to ask if you've written enough, then you probably haven't.
- NEVER write something if you don't know WHY you are writing it.
- Your proof should have a logical flow.
- Try to only write what is necessary. Don't add unnecessary information as filler because this makes you look like you don't know what you are doing.