

## Reading Mathematics

Ideas taken from “How to read and study mathematics” by Ruth Hubbard, Queensland Institute of Technology

Reading mathematics is often more difficult than other reading for several reasons:

**Precision:** Every word and symbol has a specific and precise meaning. Often this meaning is not clear from the context.

**Speed:** Reading mathematics is slow, even for the experts. Many statements must be read several times. Often you will have to backtrack when you forget what a word or symbol means.

**Sequential:** Mathematics reading is sequential: You need to know and understand what came before in order to understand what you are now reading. Earlier concepts must be firmly fixed in your mind in order to understand the new material.

**Concise:** Mathematical writing is very concise. Every word is important. Often there may be several ideas in one sentence.

**Key Words:** You can't just read the “key words”. Often the small words like “every”, “some”, “all” and “there exists” are the most important.

**Terse:** Many times details and steps are omitted. The reader is forced to fill in missing pieces.

**Meaning:** Often the mathematical meaning of a word used may be different from an ordinary or common meaning of the word. Take care to know how each word is used.

**Abstract:** Many mathematical ideas are very abstract. Usually it will be necessary to look at concrete examples to understand the ideas and processes. You almost always have to read with a pencil in your hand and try many examples.