

Topics Specific to the Writing of Mathematics

Based on Chapter 2 of Krantz's Guide

Summary Presentation

February 23, 2026

Introductory things

- ▶ **The Title:** Should be informative and tell the reader exactly what the paper is about and what point it makes.
- ▶ **Author Identity:** Choose a professional name and stick to it consistently for indexing service.

Structure for the Reader

- ▶ **Not Strict Logical Order:** A paper should not be written solely for archiving but for how people learn.
- ▶ **Encouraging the Reader:**
 - ▶ **Intro:** Summarize main results in nontechnical language and provide history/context.
 - ▶ **Section 2:** Formal statement of results and definitions.
 - ▶ **Section 3+:** The "big steps" of the proof, pushing technical lemma details to the end.
- ▶ **Redundancy:** Re-state definitions or lemmas if they were given many pages ago to assist the reader.

Stating Theorems and Definitions

- ▶ **Theorem Length:** Aim for fewer than ten lines (ideally five). Group complex hypotheses into defined terms like "regular" or "amenable".
- ▶ **Definitions:**
 - ▶ State them succinctly using short, simple sentences.
 - ▶ Build complex ideas in steps rather than all at once.
 - ▶ Use standard notation where available; do not create new notation unnecessarily.
 - ▶ Customarily use "if" in definitions, though "if and only if" (or "iff") is the logical meaning.

Writing the Proof

- ▶ **Signposts:** Provide a clear roadmap so the reader knows where they are and where they are going.
- ▶ **The "Claim":** Use "Claims" to state the crux of a proof, allowing readers to see the "happy ending" before diving into nasty verification details.
- ▶ **Proof by Contradiction:** Avoid "Not" or "Deny" as openers. Use the clearer: "Seeking a contradiction, suppose that..."
- ▶ **Milestones:** Pay due homage to major steps (e.g., the Riemann mapping theorem) rather than treating them as offhand remarks.

Abstracts and Bibliographies

- ▶ **Abstracts:** Keep to 10 lines. Should be self-contained, avoiding notation/jargon and bibliographic references.
- ▶ **Bibliographies:**
 - ▶ Accuracy is paramount; consult primary sources rather than just copying references.
 - ▶ Only list references actually cited in the text.
 - ▶ Use tools like BibTeX for consistent formatting.
 - ▶ Be specific: cite exact theorems or page numbers rather than entire multi-volume works.