

# A Gourmet's Guide to Good Duck Soup

## Guidelines for Writing Math Papers

David M. Bressoud

### **1 To earn at least a C: you must have a duck**

- You have successfully solved the problem.
- All of the mathematics is correct.
- All of the proofs are logically correct and complete.
- All of the terminology and mathematical notation is used correctly.

### **2 To earn at least a B: the duck must be cooked**

- The paper has a clear introduction that describes the problem, indicates the nature of the solution, and gives the reader an overview of how you solved the problem.
- All special terminology is clearly and correctly defined.
- All mathematical notation is clearly defined and used unambiguously. You never use the same letter or symbol to stand for two different things, and your choice of symbolic representation is consistent.
- Each step of the solution is completely and clearly explained. Explanations focus on what you did and are expressed in complete sentences that are built into well-structured paragraphs, each of which deals with a single point and has a point sentence.
- There are no ambiguous pronouns or references and no dangling clauses.
- The paper ends with a conclusion in which you summarize what you have accomplished and, if appropriate, comment on the significant or surprising features of this project.

### 3 To earn an A: the soup must be tasty

- The introduction engages the reader.
- Each step of the solution is well motivated: the reader understands why you did it.
- Paragraphs are clearly linked. The reader should never have to wonder how a new paragraph relates to what came before.
- Diagrams, drawings, or tables of values are used wherever they might help the reader to understand what you are describing. They are clearly labeled and referred to in your text. And it is always easy to find the diagram, drawing, or table that is being described.
- Well chosen examples are used to illustrate your arguments.
- Equations and other mathematical notation are used sparingly inside paragraphs. All complicated equations are displayed.
- Sequences of displayed equations are never used without explanation of what is happening.
- The explanations are complete but simple and crisp. You avoid complicated sentence constructions and passive voice as much as possible.
- The most important points are clearly emphasized so that the reader has little trouble identifying the critical features of your arguments.
- Spelling, punctuation, and grammar are completely correct.

version of 24.11.97