

Preparation and Structure & Practice

February 15, 2019

There are things one must keep in mind when preparing any document.

- Begin by writing your document in draft form, or at least write down a list of key points. Few people are able to produce good writing at the first attempt.
- Consider the background of your readers; are they familiar with the meaning of the words you use? It's easy to write a mathematics text that's too difficult; it's almost impossible to write one that's too easy.
- Form each sentence in your head before writing it down. Then read carefully what you have written. Read it aloud: how does it sound? Have you written what you intended to write? Is it clear? Don't hesitate to rewrite.

- Split the text into paragraphs. Each paragraph should be about one idea, and it should be clear how you are moving from one idea to the next. Be prepared to re-arrange paragraphs. The first idea you thought of may not have been the best one; the sequence of arguments you have chosen may not be optimal.
- When you finish writing, consider the opening and closing sentences of your document. The former should motivate the readers to keep reading, the latter should mark a resting place, like the final bars in a piece of music.
- Word processing has changed the way we write, and often a document is the endproduct of several successive approximations. After prolonged editing, one stops seeing things. If you have time, leave your document to rest for a day or two, and then read it again.

Before you take the test, give yourself time for some remarks.

1. Depend **on** and independent **of**.
2. If a series of objects are numbered by positive integers, corresponding to ordinal numbers, no article is used: in Section 2; on page 4; in row n .
3. *Let* is the imperative of the verb *to let* and has to be followed by an infinitive (without *to*).
4. The verbs *allow*, *enable*, *permit* and *remind* requiring an indirect object.

This lemma allows **us** to prove the theorem.

Theorem 3 enables **discontinuous derivations** to be built.

This lemma reminds **the reader** some results

Formula (6) permits **transfer of the results in Section 2** to

5. Briefly or Shortly

We denote it briefly by f_i .

A precise definition will be given shortly.

6. Some verbs have to be followed by an ing form, such as *avoid*, *finish*, *suggest* and *devote to*.

7. If you want to negate an adjective that appears before a noun, you have to use non-: a nonempty set; a non-locally convex space; a non-Euclidean domain. Using not is only possible when the adjective follows the verb be: This space is not Euclidean.

8. contradict something Or contrary to something

If you want to use to at the end of an indirect proof, you can write:
... which contradicts Theorem 2. Or; ..., contrary to Theorem 2.

9. at the point x ; in the set A (or on the set A).

10. Join a to b ; Disjoint from X

11. Then a is less/greater than (or equal to) 3.

a is at least/most 3.

a does not exceed 3.

f is of degree 3 or less/more.

12. Let $+$ to be

Let f and g are differentiable functions. \times

Let f and g be differentiable functions. \checkmark

Improve the writing

- 1 There are 3 special cases.
- 2 It does not tend to infinity.
- 3 c^{-1} is undefined.
- 4 We square the equation.
- 5 $x^2 = y^2$ are two orthogonal lines.
- 6 This set of matrices are all invertible.
- 7 Purely imaginary is when the real part is zero.
- 8 From the fact that $x = 0$, I can't divide by x .
- 9 The function f is not discontinuous.
- 10 The solution is not independent of s .

Exercise 1

Improve the writing, following the guidelines given in this chapter.

1. X is a finite set.
2. It follows $x - 1 = y^4$.
3. The product of 2 negatives is positive.
4. We have less solutions than we had before.
5. Let us device a strategy for a proof.
6. If the integral $= 0$ the function is undefined.
7. Construct the set of vertex of triangles.
8. A circle is when major and minor axis are the same.
9. Plug-in that expression in the other equation.
10. I found less solutions than I expected.
11. When the discriminant is < 0 , you get complex.

Exercise

12. We prove Euler theorem.
13. The definite integral is where you don't have integration limits.
14. The asymptotes of this hyperbola are orthogonal.
15. A quadratic function has 1 stationary point.
16. The solution is not independent of s .
17. a is negative \sqrt{a} is complex.
18. Thus $x = a$. (We assume that a is positive).
19. Each value is greater than their reciprocal.
20. Remember to always check the sign.
21. Differentiate f n times.