Writing Math Papers

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Overview

Possible Things To Write About

There really aren't that many options here. They are as follows:

- Discoveries
- Exposition
- Homework

Discoveries

Theorem (Your "Discovery" Is Useless)

Whatever you just discovered was probably proven by Gauss before he reached the age of 35. But we haven't read all of his journals yet, so write your soon-to-be-useless paper anyway.

What IS An Expository Paper?

Expository Papers

Expository papers are summaries. The goal is to condense, say, 405 pages of hard-to-understand mathematical textbook into an easy-to-read 10-14 page paper or a 15 minute presentation. This is obviously a very hard task, which is why Expository Papers are very important.

Just Kidding

It turns out that the expression: $f_{Y_1 Y_2}(y_1, y_2) = f_{X_1 X_2}(x_1, x_2)|J(x_1, x_2)|^{-1}$, where $J(x_1, x_2)$ is the Jacobian determinant of a 2x2 matrix isn't actually easier to understand after reading 9 pages then after reading 300.

So Why Write Them?

You write Expository Papers because you are told to. Mainly by some organization with power to give you work. This can include your current school, or that random afterschool program you signed up for...

Homework

I have saved the most boring for last. This is even worse than an Expository Paper. In fact, it's just you answering the questions that someone else gave you to answer.

Honestly, you just have to answer the questions, and don't have to care about consistency or any of that boring stuff that you need for, say, an Exposition Paper.

These are simply assigned to give you a sense of how to use the technology known as LaTeX, yes, the font IS mandatory, that is used to type math.

Things You Need To Do To Write Your Paper

So, You've chosen a type of paper. Great Job!

- The Math In Question
- Learning To Use LaTeX
- Using Your Executive Functioning Skills To Actually Write The Thing
- Getting Feedback
- Employing Said Feedback

The Math In Question

To be honest, if you're actually writing a math paper of any kind, you really don't need MY advice on doing math. Here's a list of other people to talk to first:

1. Whoever told you to write the paper in the first place
2. Whoever told them to tell you to write the paper in the first place
3. Your math-y friend
4. Your parents
5. Your math teacher

Learning To Use LaTeX

LaTeXis the solution to the problem of having to use Google Docs' equation editor. Here are some examples:

Example ($\frac{a}{b}$)

```
$\frac{a}{b}$
```

Example (

$$\int_{-\infty}^{\infty} x \cdot e^x dx = e^x(x-1)$$

)

```
$$\int_{-\infty}^{\infty}x\cdot e^x dx = e^x(x-1)$$
```

Example ($\sum_{i=1}^{5} 3i = 45$)

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$\sum_{i=1}^53i=45$
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I Can't Help With This
I'm Bad At It Too

Getting Feedback

Someone told you to write this thing, and assuming you finished on time, they probably have feedback for you...

The Feedback You Got

1. Make all the variables *fancy*
2. Make it more like a textbook
3. Or at least a dictionary

Variables should look like this: A, not this: A. If you're going to use an example, you need to put it under the example header. The same thing goes for a proof. In addition, you should always put the examples after you explain the thing, not use them to explain the thing. Don't say, "We will represent the number of heads with A." Instead say, "Let A represent the number of heads."

Employing Said Feedback

Feedback Is Very Important

Feedback is how you make your writing better, or at least more conventional.

But At The Same Time

You probably wrote things the way you did for a reason, didn't you?

So Honestly...

Oh, Did I say "Employing Said Feedback"? I should have said "Ignoring Said Feedback" and turning your paper in without editing it further.

The End Of The Presentation
I Hope You Enjoyed!