Introduction to LaTeX

Math 3140 Class

October 1, 2014

1 Introduction

The introduction to a math paper should convince the reader that this is worth reading, and perhaps why it is important. It should be as untechnical as possible, and should describe in "English" what the main result is.

To start a new paragraph, skip a line, and go on. Spacing is done automatically, so the large space disappears.

2 Preliminaries

The preliminaries section should include background material that you expect the reader to know, or the reader should know before reading the paper. This could include definitions, or key results.

For example, recall a *function* $f : A \to B$ from a set A to a set B is a subset $\mathcal{F}_f \subseteq A \times B$ such that for each $a \in A$ there is a unique $b \in B$ such that $(a, b) \in \mathcal{F}_f$.

Alternatively, we could state a theorem.

Theorem 2.1 (Cayley's Theorem)**.** *If G is a finite group, then G is isomorphic to a subgroup of S_G.*

Proof. Here is the proof. Obvious. □

Note that this version of Theorem 2.1 is different from the version in [1].

3 Main results

The main results should attempt to state the main result carefully (and technically correct), and prove the main results.

Optionally, one can include some corollaries, consequences or key examples.

3.1 Result 1

Lead up to result one with proof.

3.2 Result 2

Perhaps there is a second result of interest.

Remarks.

(a) Lists have various possibilities.

(b) I've hacked what the bullets give me.

1. The default for enumerate is just numbers, for itemize is bullets.

There's tons of stuff you can do:

$$\sum_{i=1}^{n} n = \binom{n+1}{2}.$$

One also align equations, so

$$\begin{aligned}(x+y)^n &= (x+y)(x+y)^{n-1} \\ &= (x+y)\sum_{k=0}^{n-1}\binom{n-1}{k}x^k y^{n-k-1}\end{aligned}$$

One can also number displayed equations by

$$A \subseteq \{a \in S \mid b \in T \text{ for all } k \in K \cap L\}. \tag{3.1}$$

If there is an error, then we get α.
Matrices are done as arrays, so for example,

$$\left(\begin{array}{cc|cc} 1 & e^{x^2+1} & \int_{\mathbb{C}} \pi & 0 \\ -3 & 0 & 5\sin(x) & \frac{1-x}{x^2+1} \end{array}\right)$$

References

[1] Armstrong.