Sample LaTeX document

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This is dedicated to the one I love

Abstract

This is a great paper. Read no further, because I don't want you to hurt yourself, but if you can't help yourself, better strap in. It gets bumpy from here on in.

1 Introduction

The results which follow will dwarf all others that have come before. It amazes me that I have been able to write them down. I know that you too will be duely impressed.

2 Preliminaries

What! You don't know what I'm talking about!!

Let's try a little fraktur $\mathfrak{ABC}$. Let's try a little black board bold $\mathbb{Z}, \mathbb{P}, \mathbb{Q}, \mathbb{R}, \mathbb{C}$. Let's try some other symbols like $x \gg 0$ or $\otimes$. How about $M \otimes_{\mathbb{Z}} N$ or $\mathbb{Z}^{\mathbb{Z}^{\mathbb{Z}}}$?

How about $p \nmid N$ or $\boxplus$?

3 Some sample theorems

Lemma 3.1. *Let's put here exactly what we need to prove the next theorem.*

Theorem 3.2. *Let f be a nonzero element of $S_{k/2}(4N, \psi)$. Then there exist an infinite number of square-free positive integers t such that $\mathbf{S}_t(f) \neq 0$.*

Proof. If $\mathbf{S}_t(f) = 0$ for all but a finite number of square-free positive integers t, then by Lemma 3.1 the Fourier coefficients of f are supported on only a finite number of square classes. By Theorem 3 of [3] the weight of f must be 1/2 of 3/2 and at weight 3/2 must be in the span of the theta series h_ψ, contrary to assumption. $\square$

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By Theorem 3.2, we see that it we can always find nonzero Shimura lifts.

Definition 3.3. *A horse is a horse of course, of course, but noone can talk to a horse of course . . . .*

Here we have some displayed and aligned equations.
Here is an unnumbered displayed equation:

$$T(m)T(n) = \sum_{d|(m,n)} d^{k-1}\chi(d)T(mn/d^2).$$

Here is a numbered displayed equation:

$$T(m)T(n) = \sum_{d|(m,n)} d^{k-1}\chi(d)T(mn/d^2). \tag{3.1}$$

Here is the same expression, but inline and not displayed. Notice it is set smaller and the summation indeices are placed differently: $T(m)T(n) = \sum_{d|(m,n)} d^{k-1}\chi(d)T(mn/d^2)$. Note I need to use \$ to surround my formula when in an inline mode.

For an aligned display we have

$$\begin{aligned} \Lambda_N(s;f) &= \left(\frac{2\pi}{\sqrt{N}}\right)^{-s}\Gamma(s)L(s;f) \\ \Lambda_M(s;g) &= \left(\frac{2\pi}{\sqrt{M}}\right)^{-s}\Gamma(s)L(s;g) \end{aligned}$$

A numbered version is given by

$$\Lambda_N(s;f) = \left(\frac{2\pi}{\sqrt{N}}\right)^{-s}\Gamma(s)L(s;f) \tag{3.2}$$

$$\Lambda_M(s;g) = \left(\frac{2\pi}{\sqrt{M}}\right)^{-s}\Gamma(s)L(s;g) \tag{3.3}$$

A version with only one number associated to the group of equations is given by

$$\begin{aligned} \Lambda_N(s;f) &= \left(\frac{2\pi}{\sqrt{N}}\right)^{-s}\Gamma(s)L(s;f) \\ \Lambda_M(s;g) &= \left(\frac{2\pi}{\sqrt{M}}\right)^{-s}\Gamma(s)L(s;g) \end{aligned} \tag{3.4}$$

Something with cases

$$\phi_p(s) = \begin{cases} \left(\frac{1-b(p)p^{-s}+\psi(p)p^{k-1-2s}}{1-a(p)p^{-s}+\chi(p)p^{k-1-2s}}\right) & \text{if } p \mid L \\ 1 & \text{if } p \nmid L. \end{cases}$$

Theorem 3.4. *Suppose that N is an odd positive integer and ψ is an even Dirichlet character defined modulo $4N$. Let $F \in S^{+}_{k-1}(N, \psi^2) \cup S^{+}_{k-1}(2N, \psi^2)$ be a normalized newform, and suppose that $S_{k/2}(4M, \psi, F) \neq 0$ for some $M \mid N$. Then*

1. $M = N$
2. $S^{-}_{k/2}(4N, \psi) \cap S_{k/2}(4N, \psi, F) = \{0\}$, *and so* $S_{k/2}(4N, \psi, F) \subset S^{+}_{k/2}(4N, \psi)$.
3. *If N is square-free and $\psi^2 = 1$, then* $S^{+}_{k/2}(4N, \psi)_K \subset S^{+}_{k/2}(4N, \psi)$.

Let's get the other references in now. See [1] and [2].

References

[1] B. Cipra, On the Niwa-Shintani Theta-Kernel Lifting of Modular Forms, *Nagoya Math. J.*, **91**, (1983), 49–117.

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