

# Maths Notes With L<sup>A</sup>T<sub>E</sub>X

PolyMaths

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## 1 Introduction

Welcome to the template! Let's add a definition.

### Definition 1.1: Limit of a function

If, for every  $\epsilon > 0$  there exists some  $\delta > 0$  such  $0 < |x - a| < \delta$  implies  $|f(x) - L| < \epsilon$  then we say that the function  $f$  has a limit of  $L$  at  $a$  and we write

$$\lim_{x \rightarrow a} f(x) = L.$$

And let's also follow it up with a theorem:

### Theorem 1.1: Fermat's Last Theorem

The equation

$$a^n + b^n = c^n$$

has no integer solutions for every integer  $n > 2$ .

*Proof.* I have discovered a truly marvellous proof of this, which this margin is too narrow to contain.  $\square$

But this immediately implies the following corollary:

### Corollary 1.1: Riemann's

Every non-trivial zero of the Riemann  $\zeta$  function has real part one-half.

Which we can demonstrate with an example:

### Example 1.1: Poincare

Consider a simply connected, closed 3-manifold. Notice that it is homeomorphic to the 3-sphere!