

# Theorems And Proofs

ShareLaTeX Team

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## 1 Introduction

Theorems can easily be defined

**Theorem 1.1.** *Let  $f$  be a function whose derivative exists in every point, then  $f$  is a continuous function.*

**Theorem 1.2** (Pythagorean theorem). *This is a theorem about right triangles and can be summarised in the next equation*

$$x^2 + y^2 = z^2$$

And a consequence of theorem ?? is the statement in the next corollary.

**Corollary 1.2.1.** *There's no right triangle whose sides measure 3cm, 4cm, and 6cm.*

You can reference theorems such as ?? when a label is assigned.

**Lemma 1.3.** *Given two line segments whose lengths are  $a$  and  $b$  respectively there is a real number  $r$  such that  $b = ra$ .*

*Proof.* To prove it by contradiction try and assume that the statement is false, proceed from there and at some point you will arrive to a contradiction. ■

Unnumbered theorem-like environments are also possible.

*Remark.* This statement is true, I guess.

And the next is a somewhat informal definition

**Definition 1.1.** *Fibration* A fibration is a mapping between two topological spaces that has the homotopy lifting property for every space  $X$ .