## 1 Numbered theorems, definitions, corollaries and lemmas

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 1.2 is the statement in the next corollary.

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

You can reference theorems such as 1.2 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.

**Definition 1.1** (Absolute value function). The absolute value function can be specified as a two-part definition as follows:

 $|x| = \begin{cases} x & \text{if } x \ge 0\\ -x & \text{if } x < 0 \end{cases}$