The Axioms of the Greeks

The famous Greek mathematician Euclid (c. 300 BCE) produced a set of rules, known as axioms, that formalize what we intuitively think is true about doing geometry with a compass and straightedge.

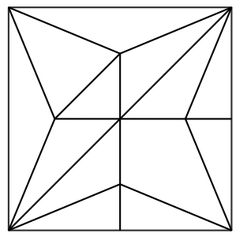
Robert Simson
The Elements of Euclid
Philadelphia : Printed for Conrad and Co., 1810

Angle Trisection

Mathematicians have struggled for millenia to perform certain geometric constructions using a compass and straightedge- for example, to divide any given angle into thirds. In the 19th century it was proven that it is actually impossible to perfectly trisect an arbitrary angle with compass and straightedge. However...

A Better Answer

In fact, if our paper is thin enough, we can get an arbitrarily large perimeter! We can do this by tiling this crease pattern in a grid.



The Axioms of Origami

There is a corresponding set of axioms for doing geometry with origami. These formalize what we can accomplish by folding lines on a piece of paper. There are seven axioms, four of which we include here.