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# The Fibonacci Pyramid of Giza

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# The Fibonacci Pyramid of Giza

Ates Gulcugil

" Exact measurements of the Great Pyramid were first made by W.M. Flinders Petrie, and published in 1883 by the Royal society in his book, "The Pyramids and Temples of Gizeh". The Great Pyramid was professionally surveyed by J.H. Cole, and the measurements were published in his "Determination of the Exact Size and Orientation of the Great Pyramid", published by Government Press, Cairo, 1925. Many of these measurements were subsequently recorded in "The Great Pyramid Decoded", by Peter Lemesurier, 1977. "

The Global Education Project

"Height (including capstone): 480.69 feet

Length of Sides:

West: 755.76 feet

North: 755.41 feet

East: 755.87 feet

South: 756.08 feet

Apothem (Distance from the apex, or highest point, down one side to the center of a base): 610 feet "

The Global Education Project

My research shows that the Fibonacci sequence has been used in art and architecture since (at least) Gobeklitepe. This is demonstrated in my work 'Golden Ratio Since Gobeklitepe, The 12000-year journey of the golden ratio', in academia.edu.

Here, a model of the Great Pyramid is constructed with Fibonacci numbers.

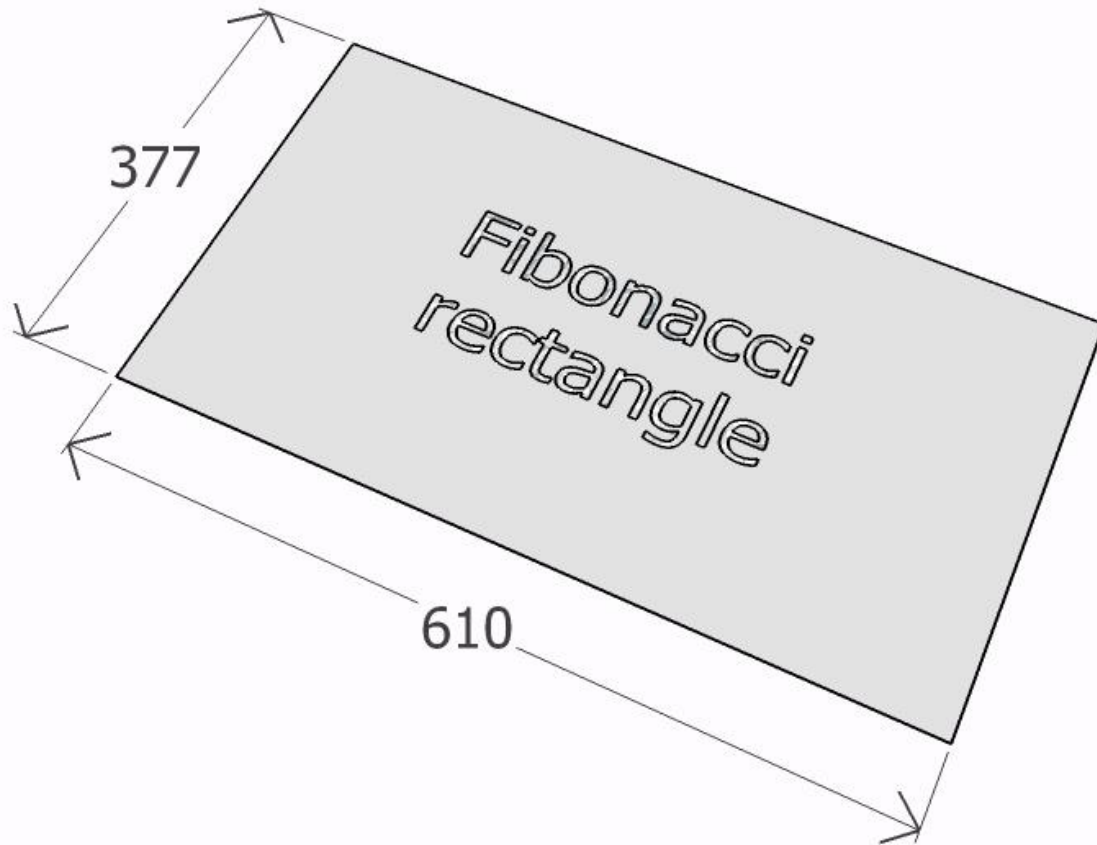
The Fibonacci sequence (or Fibonacci numbers) starts with 1 and 2, and each new number is the sum of the two preceeding (smaller) numbers.

Fibonacci numbers are: 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610 etc.

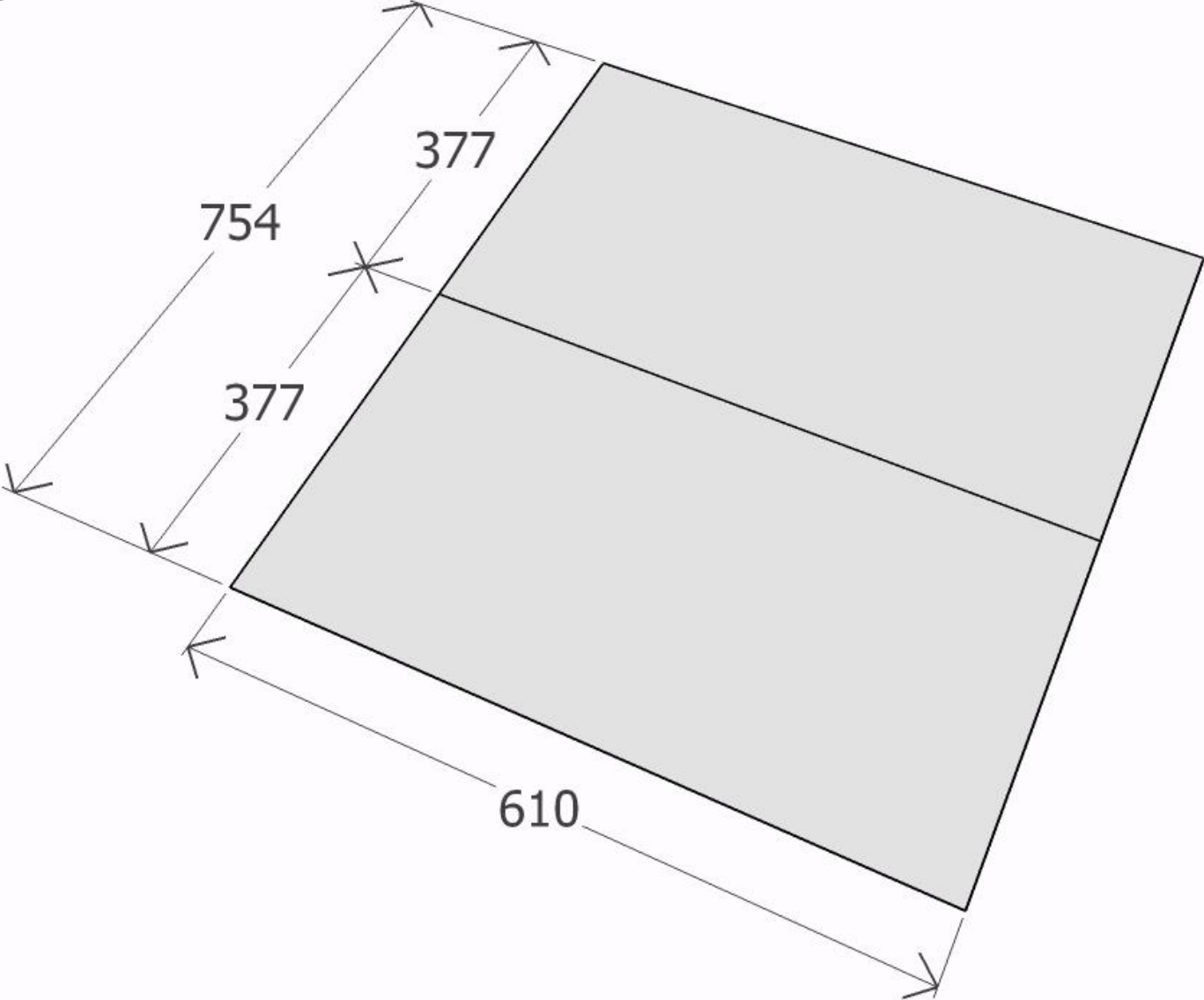
Ratio of successive Fibonacci numbers approach 1,618, the golden ratio.

A Fibonacci rectangle 377 ft by 610 ft is drawn.

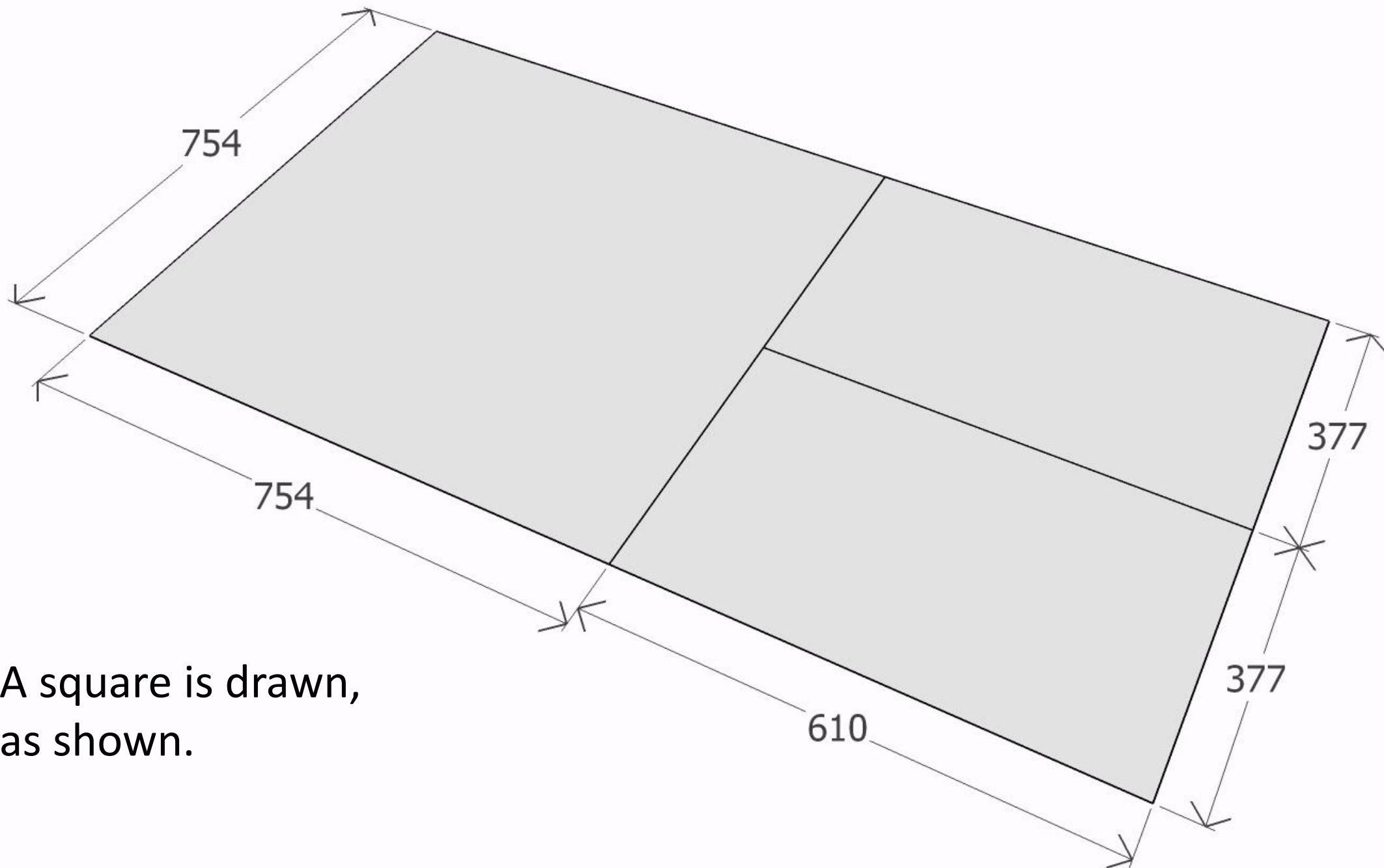
Fibonacci rectangle: A rectangle with neighboring Fibonacci numbers as its sides.



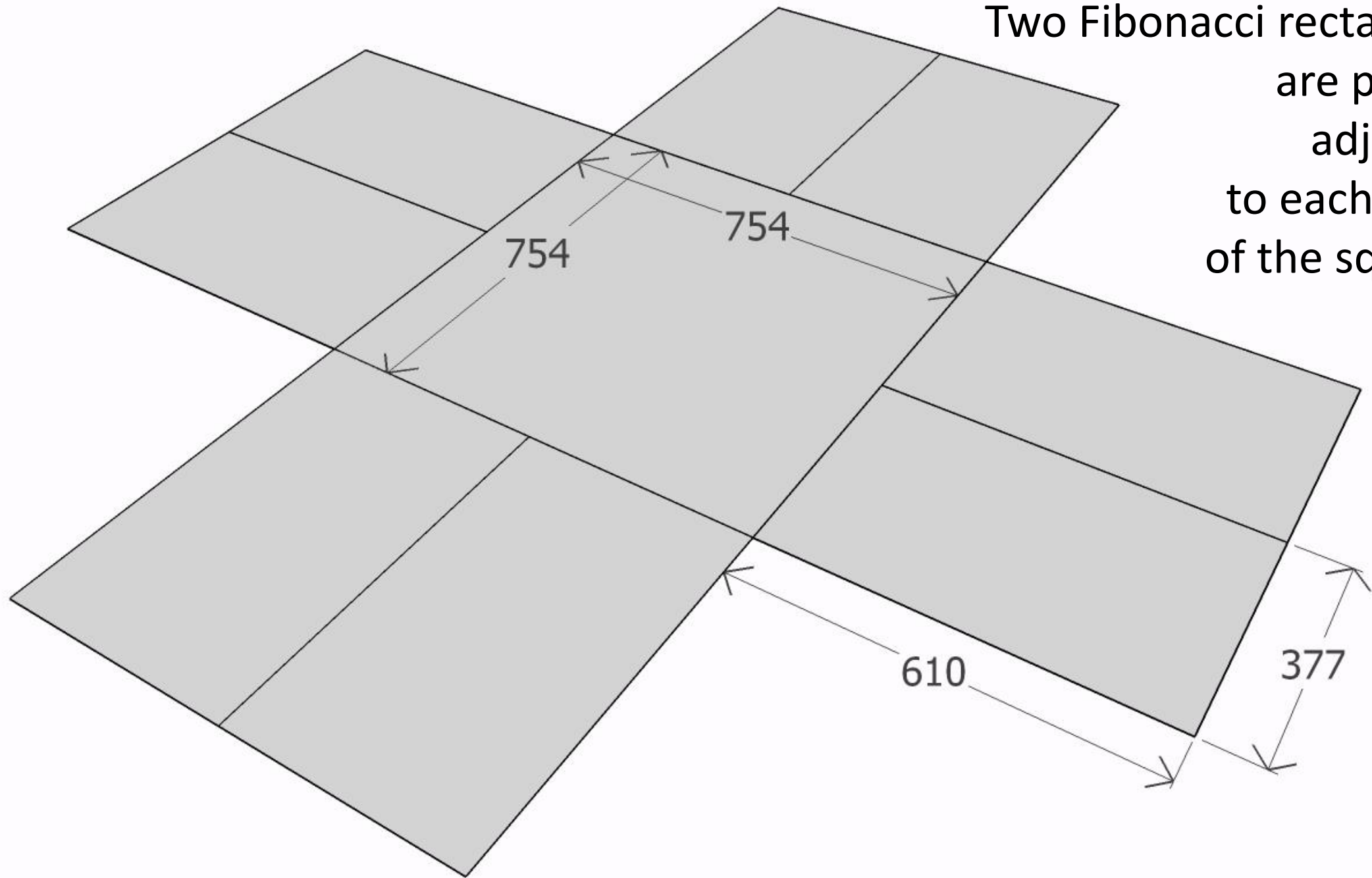
The Fibonacci rectangle is copied to its side.





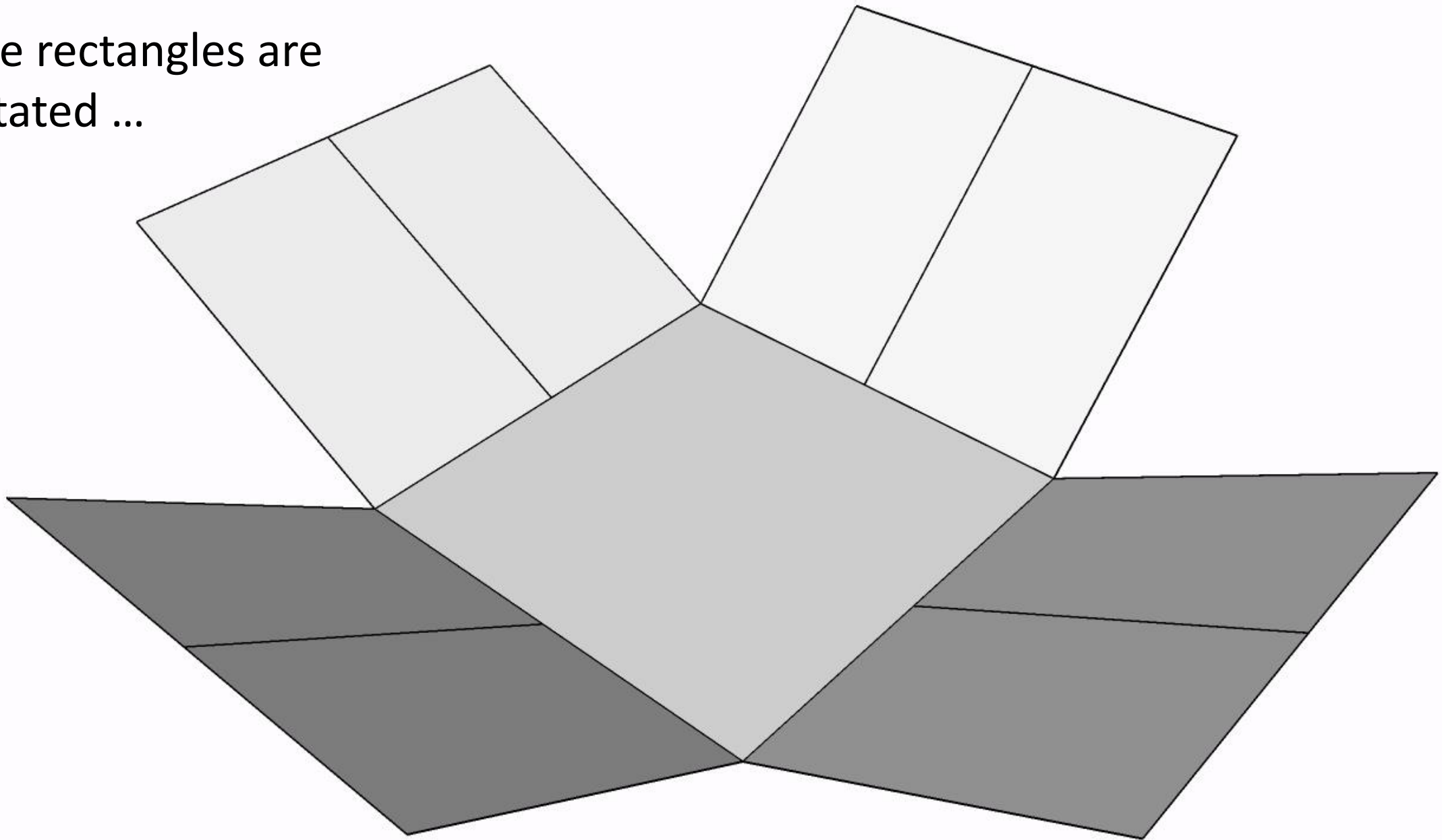


A square is drawn,  
as shown.

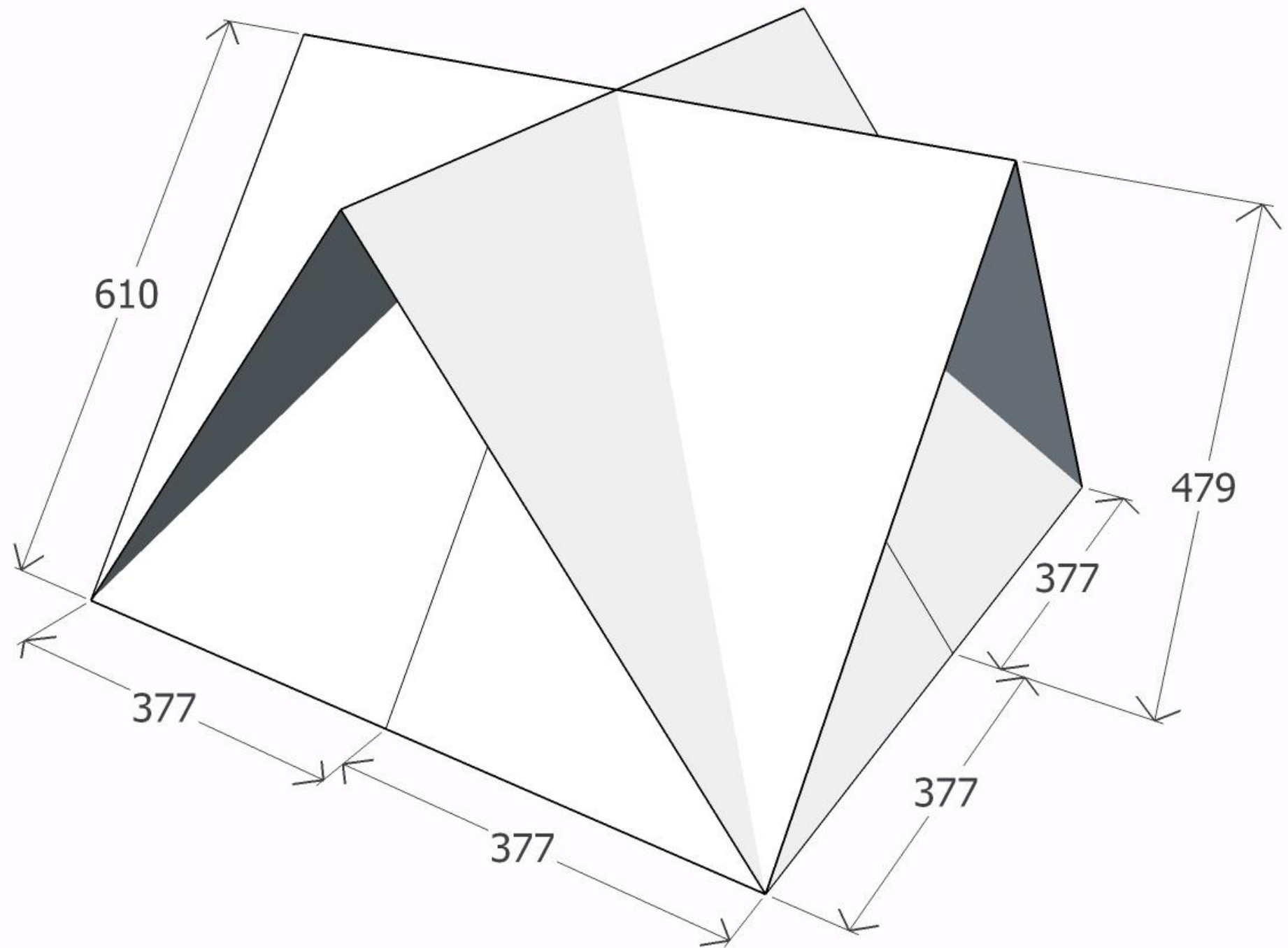


Two Fibonacci rectangles  
are placed  
adjacent  
to each edge  
of the square.

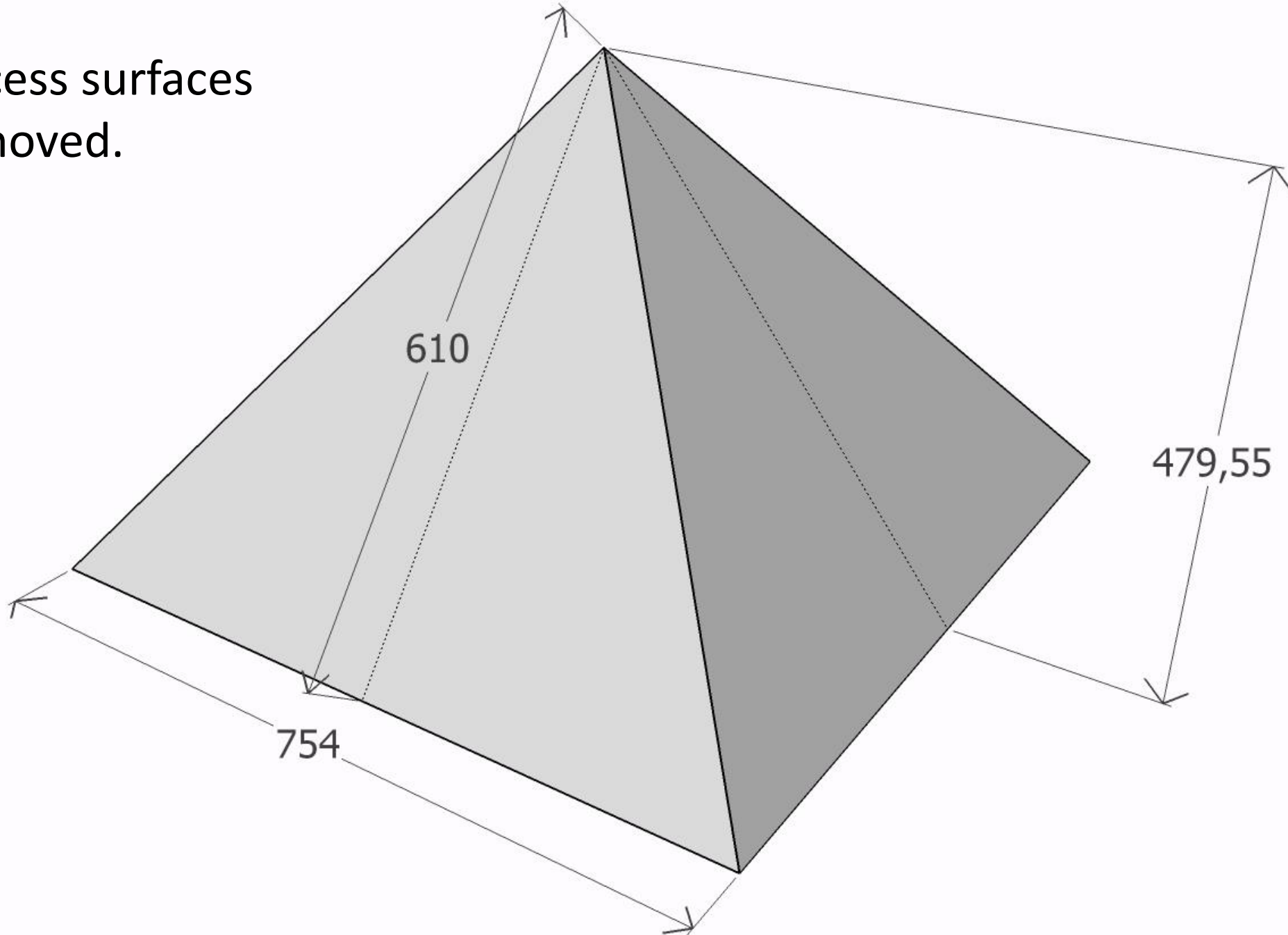
The rectangles are  
rotated ...



... until they  
meet in the  
middle.



The excess surfaces  
are removed.



## About the author

Ates Gulcugil (b 1945) worked in electronics industry. After his retirement in 2001, he started drawing cartoons. He won the first prize in 2002-Aydın Doğan International Cartoon Contest and 2005-Yunus Nadi Cartoon Contest. Today, he continues the golden ratio research he started in 2003. Gulcugil is a graduate of the Faculty of Electrical Engineering, Middle East Technical University.

## Other works by the author (academia.edu)

Palladio's Design Procedure (From Gobeklitepe to Palladio)

Golden Ratio Since Gobeklitepe (The 12000-year journey of the golden ratio)

Golden Ratio Art

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