Subject: Pythagoras puzzle
Posted by Magic on Sat, 12 Sep 2009 16:36:33 GMT
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Hi again,

In the package I received yesterday there was also the Pythagoras puzzle.
It allows to demonstrate the Pythagoras theorem: in a right-angled triangles, the sum of the areas of the two squares on the legs (A and B) equals the area of the square on the hypotenuse (C).
You can draw squares on all the sides of a right-angled triangle, to visualize this.
As AÂ²+BÂ²=CÂ², there exist at least one dissection of the square CÂ² whose pieces can be rearranged to fill the square AÂ² and BÂ².
This puzzle is such a dissection (5 pieces), with a support consisting of 3 square-shaped boxes surrounding empty right-angled triangle.

You can put all the pieces in the two smaller squares:

or into the biggest one:

By the way, the biggest triangle of this dissection has the same shape as the initial righ-angled triangle.

The biggest dimension of the smaller piece is approximately 1cm. Except this one, all the other pieces are hollowed, and I had to clean-up some support material only on the smallest hollowed part.

File Attachments

1) Pyth0.jpg, downloaded 905 times
2) Pyth1.jpg, downloaded 723 times
3) Pyth2.jpg, downloaded 754 times

Subject: Re: Pythagoras puzzle
Posted by Nshortino on Sat, 12 Sep 2009 16:49:30 GMT
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Awesome! I love math puzzles like these.

Subject: Re: Pythagoras puzzle
Posted by Magic on Sun, 13 Sep 2009 19:56:51 GMT

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Thanks Nicholas. You can see a video of the Pythagoras puzzle on my Channel on YouTube: it gives a better idea of the size of the puzzle (and also shows that it is quite easy to solve once you know where each piece must go)

Subject: Re: Pythagoras puzzle
Posted by gibell on Sun, 13 Sep 2009 23:17:13 GMT
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Is that a 3 / 4 / 5 triangle? Well done!

Subject: Re: Pythagoras puzzle
Posted by Magic on Mon, 14 Sep 2009 05:56:24 GMT
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Thanks George. I tried with these integer values, but I was not pleased with the proportions. So actually the proportions are 3/5/5.83095...