

Homework 1: due Sept 12

MATH 300, Jonathan Schneider

Fall 2018

1 Your assignment

For this homework assignment, you must submit a proof of the Pythagorean Theorem, different from the one given below. The theorem and proof should be clearly explained and illustrated. Submit the completed document as a .pdf; also submit the .tex source file. Homework should be submitted through uic.blackboard.com.

You will need a LaTeX typesetter appropriate for your computer system. For Windows, I recommend TexWorks. For Macintosh, I recommend TexShop. You may create your document by modifying the .tex source file for this prompt.

For guidance on how to use LaTeX, you may consult

- the internet
- human beings such as myself, Jonathan Schneider
- the source file for this prompt.

Note that any graphics you wish to include must be saved in the same location as the source file.¹ It is not necessary to submit the image files with your completed assignment.

¹Alternatively but not recommended, you may specify a path in the includegraphics command.

2 Example

The following proof is informal; you may make yours as rigorous or as glib as you please. I really only care that you're using LaTeX.

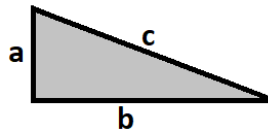


Figure 1

Theorem 1

A right triangle in the plane, with sides lengths a , b , and c as shown in figure 1, satisfies the equation

$$a^2 + b^2 = c^2.$$

Proof. Four wooden copies of the triangle are placed inside the corners of a square frame of dimensions $(a + b) \times (a + b)$, as shown on the left of figure 2. There is an unoccupied square of dimensions $c \times c$ in the center; its area is c^2 .

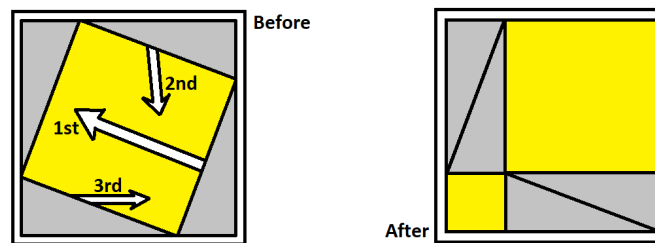


Figure 2

The wooden triangles may be slid through the empty space as indicated. The resulting configuration features two unoccupied square spaces of dimensions $a \times a$ and $b \times b$, respectively; its total area equals $a^2 + b^2$. Since the area of unoccupied space is conserved during rearrangement, the result follows. \square