

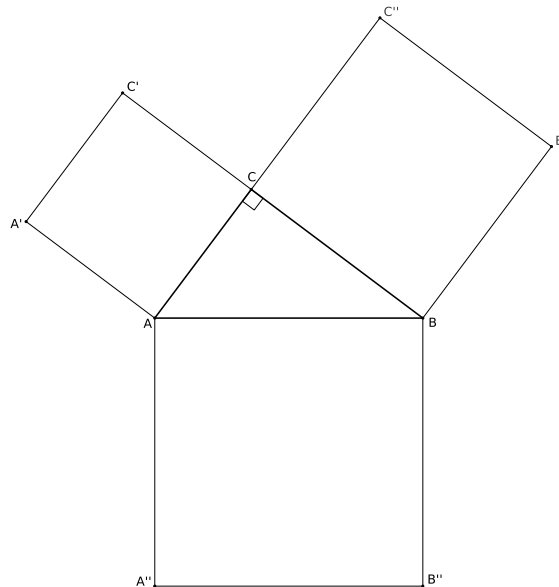
The Pythagorean Theorem

In this activity we will prove the most famous theorem of all.

Question 1 Remind us, what is the most famous theorem of all and what exactly does it assert?

Euclid's proof

Question 2 What would one need to prove about the following diagram to prove the Pythagorean Theorem?



Let's see if we can do this!

Question 3 Draw a line perpendicular to \overline{AB} that passes through both C and $\overline{A''B''}$. Call the intersection between this line and \overline{AB} , point E ; call the intersection point between this line and $\overline{A''B''}$, point E' . Explain why $\triangle ACA''$ has half the area of rectangle $AEE'A''$.

Question 4 Explain why $\triangle ABA'$ has half the area of square $ACC'A'$.

Learning outcomes:
Author(s):

Question 5 Explain why $\triangle ACA''$ is congruent to $\triangle ABA'$.

Question 6 Explain why area of square $ACC'A'$ is equal to the area of rectangle $AEE'A''$.

Question 7 Use similar ideas to complete a proof the Pythagorean Theorem.

The converse

Question 8 What is the converse to the Pythagorean Theorem? Is it true? How do you prove it?
