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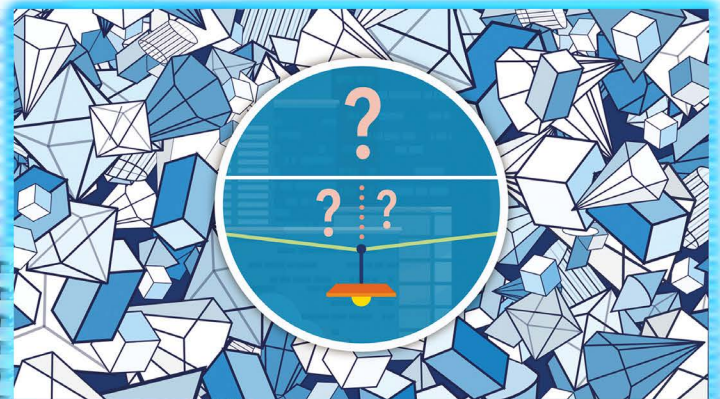
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## PYTHAGOREAN THEOREM

It's probably surprising for many people that the Pythagorean theorem, the answer would undoubtedly be, „Of course: **a square plus b square equals c square**.“ But is this answer correct? We must disappoint everyone who answered „yes“. A formula by itself can never be a theorem. If you specify what the letters **a**, **b** and **c** in the formula stand for, the answer is more acceptable.

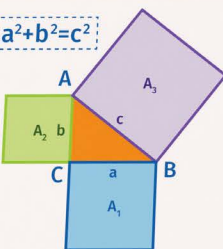
### ARE YOU SURE ABOUT IT?

If anyone was asked whether they knew the Pythagorean theorem, the answer would undoubtedly be, „Of course: **a square plus b square equals c square**.“ But is this answer correct? We must disappoint everyone who answered „yes“. A formula by itself can never be a theorem. If you specify what the letters **a**, **b** and **c** in the formula stand for, the answer is more acceptable.



**IN ANY RIGHT TRIANGLE, THE SUM OF THE SQUARES OF THE TWO LEGS IS EQUAL TO THE SQUARE OF THE HYPOTENUSE**

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

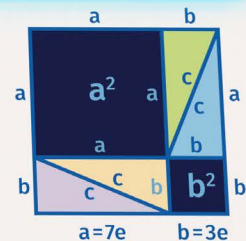


### ⚡ PYTHAGOREAN TRIPLES

The triple of positive integers that satisfies the equation  $a^2 + b^2 = c^2$ , is called a Pythagorean triple. For example, the triples 3, 4, 5 or 6, 8, 10. This theorem was first proved by Pythagoras, although it had already been a known fact long before.

### HOW COME?

Draw two squares with sides of length 10 units. Divide the squares into parts as shown in the figure. We can see that if we cut out the **four congruent right triangles** (with sides **a**, **b**, **c**) from both squares, in the figure above there remain two squares, one with side **a** and one with side **b**. The sum of the areas of these squares is equal to the area of the square with side **c**, which remains in the figure below.



### TEST YOUR KNOWLEDGE

1. What is the length of the hypotenuse of the right triangle with legs  $a=6\text{cm}$  and  $b=8\text{cm}$ ?

$c=9\text{cm}$ ,  $c=10\text{cm}$ ,  $c=11\text{cm}$ ,  $c=12\text{cm}$

