

PYTHAGORIZE THE FLATIRON!



At least one of the two smaller numbers in every Pythagorean triple is a multiple of 3.

Every integer greater than 2 is a member of a Pythagorean triple!



We are here to celebrate the **Pythagorean theorem**, which tells us about a special property of right triangles.

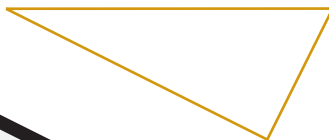
A right triangle is a triangle made from cutting a rectangle along its diagonal. One of the corners of a right triangle looks just like the corner of a rectangle. We call this a right angle — it measures 90° or $\pi/2$ radians.

The side of a right triangle opposite from the right angle is called the hypotenuse, and the other two sides are called the legs of the triangle. The hypotenuse of any right triangle is always its longest side.

The Pythagorean theorem tells us about a relationship between the lengths of the legs and the length of the hypotenuse. It says that the sum of the squares of the lengths of the legs equals the square of the length of the hypotenuse. In fewer words, but more symbols, if the lengths of the two legs are a and b and the length of the hypotenuse is c , then: $a^2 + b^2 = c^2$.

Another way to interpret the Pythagorean theorem is by attaching squares to each side of a right triangle. Then this theorem tells us that the sum of the areas of the two smallest squares is equal to the area of the largest square. In other words, we could cut the two small squares into pieces and rearrange them to fit exactly over the large square.

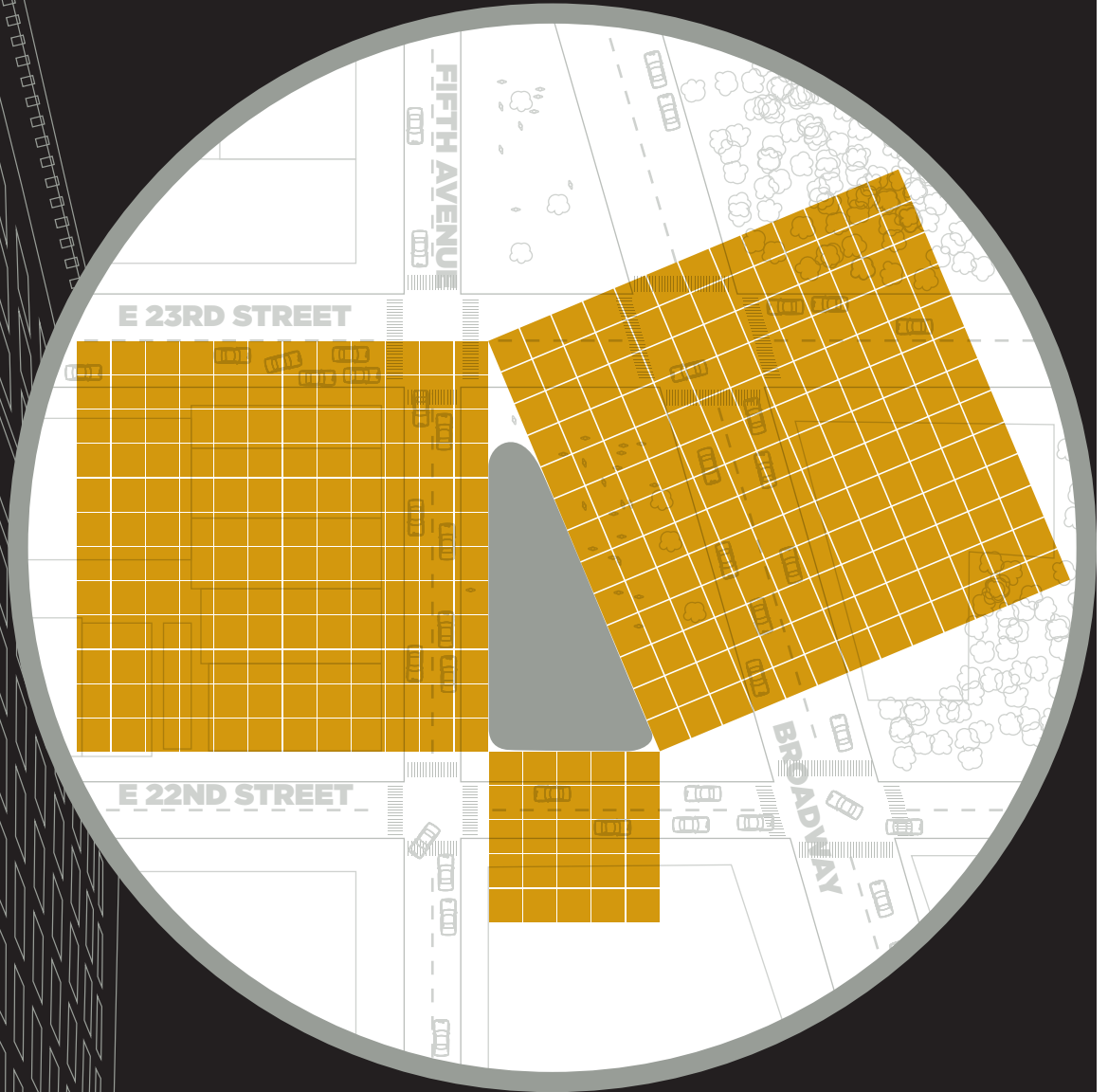
The arrangement of triangles around this page shows us one way to check that the Pythagorean theorem is true for all right triangles! Visit pythagorizemath.momath.org to see how this works.



The next time the numbers in the date will form a Pythagorean triple will be August 17, 2015.

It is impossible to have a Pythagorean triple with three odd numbers!

We can picture what the Pythagorean theorem says by attaching squares to each side of the triangle, like this:



Any three whole numbers that are the lengths of the sides of a right triangle are called a Pythagorean triple because they always satisfy $a^2 + b^2 = c^2$.

The numbers in December 5, 2013 (12/5/13) are a Pythagorean triple: 5, 12, 13. You can check that these numbers form a Pythagorean triple by finding the areas of the three squares. The square with side length 5 is made up of 25 little squares, so its area is 25 square units. Find the areas of the other two squares to see for yourself what is so special about this date.