

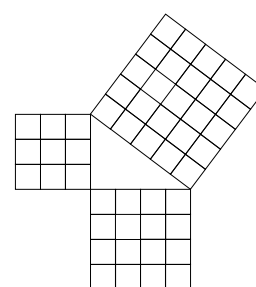
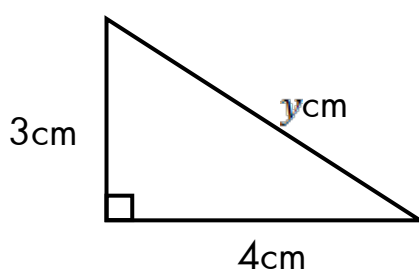
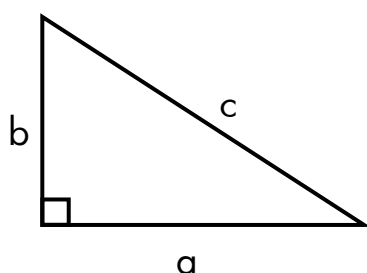
# PYTHAGOREAN TRIPLES



A right angled triangle has one angle of  $90^\circ$ . Right angled triangles have many interesting properties. If we know the length of two sides of the triangle, we are able to work out the length of the other side, using Pythagoras' theorem. The sides are defined as  $a$ ,  $b$  and  $c$ , where  $c$  is the hypotenuse (the longest side):

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

For example, to find  $y$ :  $4^2 + 3^2 = y^2$   
 $16 + 9 = 25$   
 $y = \sqrt{25} = 5$



In this example we have found a Pythagorean triple (3, 4, 5), as the length of each side is a positive integer (a whole number).

## TASK A

Complete the following table to find more Pythagorean triples.

a	b	c	$a^2$	$b^2$	$a^2 + b^2 = c^2$
3	4	5	9	16	$9 + 16 = 25$
5	12			144	
	40	41			1681
7				576	
	15		64		
			4225		9409

# PYTHAGOREAN TRIPLES



## TASK B

Now calculate your own Pythagorean triples. Try multiplying each number in a triple you have found by an integer.

EXAMPLE: For the triple 3, 4, 5, if we multiply by 3 we get 9, 12, 15.

Is 9, 12, 15 a Pythagorean triple?

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