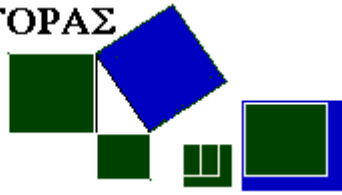


ΠΥΘΑΓΟΡΑΣ



PYTHAGORAS

Once upon a time there lived a very brave Red Indian Chief who had three wives or squaws as they were known. One fine day, the first wife presented him with a healthy baby boy. The Chief was so pleased that he had a special present made for his wife. It was a ceremonial rug for her to sit on and made of the best quality hippopotamus hide.

Shortly after the birth of his first son, his second wife presented him with his second child; also a fine bouncy baby boy. Soon after that event, his third wife delivered the third son. The Chief was well pleased.

As was the custom in those days, the second and third wives were also presented with their ceremonial rugs made of the purest buffalo and bison hides respectively.

The women sat on their hides as they carried out their craftwork and the boys played happily together for a while but as the years passed, some bullying crept in and the two younger boys started picking on the eldest.

It eventually became unbearable for the mother of the oldest boy and she decided to speak firmly to the other two boys. One thing led to another and sadly the mother came to blows with the two younger boys. This turned into a full-blown fight with kicking, punching, biting and general spilling of blood.

Three days later, this was still going on. The squaw who had spent many a serene day sitting on her hippopotamus hide was now giving everything she had to the boys whose mothers were the other two squaws.

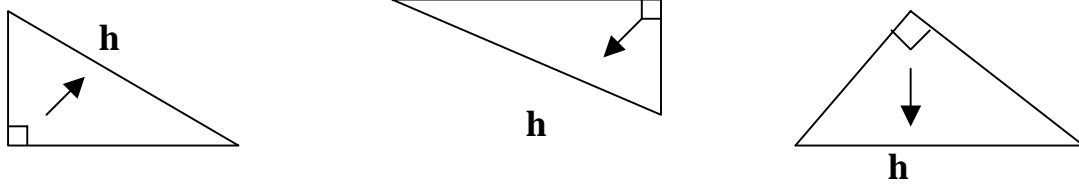
After three more days and much spilled blood, the Chief intervened and decided to make the peace. He decided to call the fight a draw.

He thus pronounced that **the squaw on the hippopotamus was equal to the sons of the squaws on the other two hides.**

Pythagoras he say that the square on the hypotenuse is equal to the sums of the squares on the other two sides.

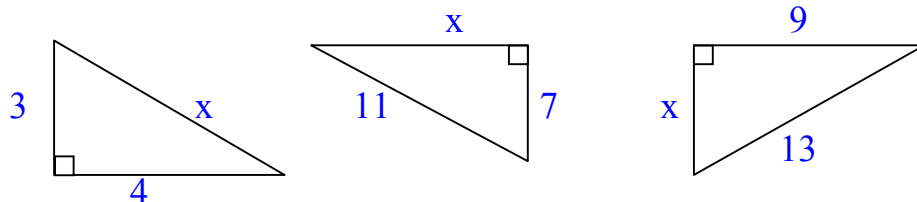
This takes place in a right-angled triangle.

The **hypotenuse** longest side in a right-angled triangle and lies opposite the right-angle.



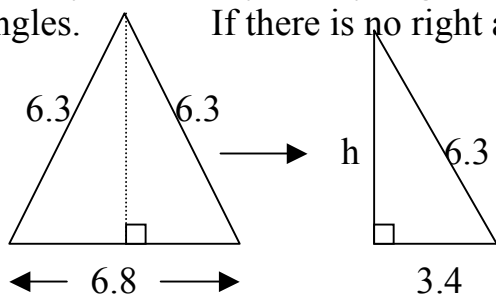
Your opening line will always read: $h^2 = b^2 + c^2$

Always start by looking at the square on the hypotenuse :



<u>Opening line</u>	$x^2 = 3^2 + 4^2$ x^2 is on the left	$11^2 = x^2 + 7^2$ x^2 is on the right	$13^2 = x^2 + 9^2$ x^2 is on the right
<u>Second line</u> Work out the square values	$x^2 = 9 + 16$	$121 = x^2 + 49$	$169 = x^2 + 81$
<u>Third line</u> Change signs and tidy up	$x^2 = 25$	$121 - 49 = x^2$ $72 = x^2$	$169 - 81 = x^2$ $88 = x^2$
<u>Finish</u>	$x = 5$ just take the square root of 25	$\sqrt{72} = x$ $8.49 = x$ take the square root of 72	$\sqrt{88} = x$ $9.38 = x$ take the square root of 88

NOTE: you can only use Pythagoras' Theorem with right angled triangles. If there is no right angle, make one!



$$\begin{aligned}
 6.3^2 &= h^2 + 3.4^2 \\
 39.69 &= h^2 + 11.56 \\
 39.69 - 11.56 &= h^2 \\
 28.13 &= h^2 \\
 \underline{5.30} &= h
 \end{aligned}$$