

Pythagorean Theorem

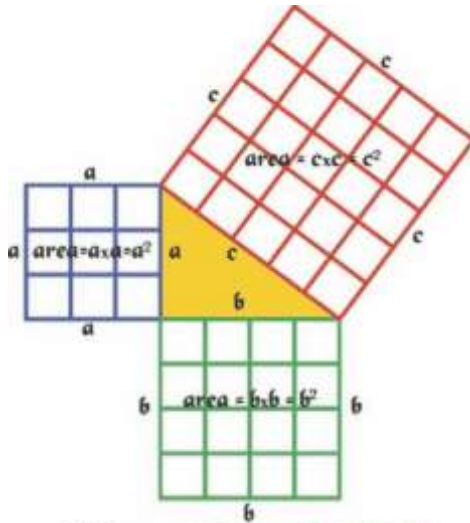
Pythagorean Theorem

In a right angled triangle: the square of the hypotenuse is equal to the sum of the squares of the other two sides.

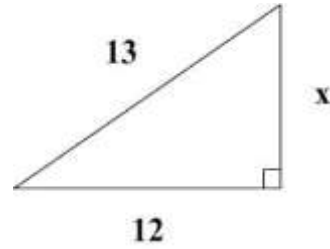
$$a^2 + b^2 = c^2$$

Hypotenuse

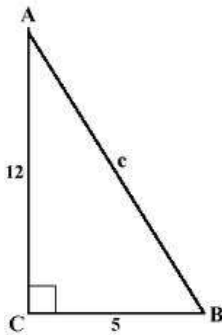
the longest side of a right triangle



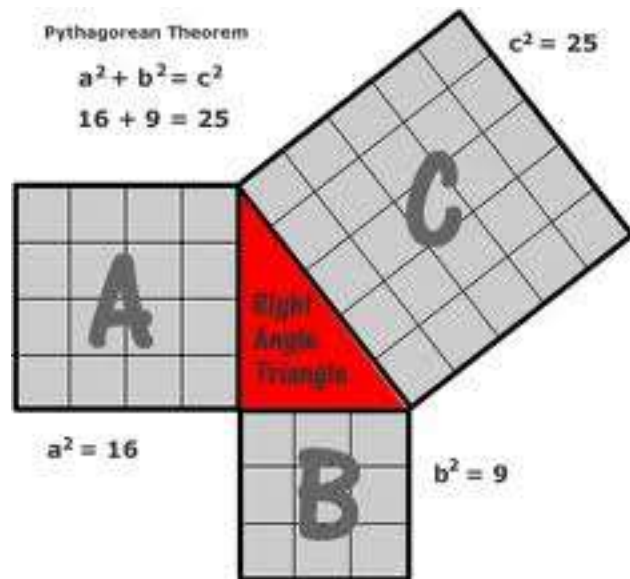
Pythagorean Theorem: $c^2 = a^2 + b^2$



$$\begin{array}{r} a^2 + b^2 = c^2 \\ x^2 + 12^2 = 13^2 \\ x^2 + 144 = 169 \\ - 144 \quad -144 \\ \hline x^2 = 25 \\ \sqrt{x^2} = \sqrt{25} \\ x = 5 \end{array}$$



$$\begin{array}{r} a^2 + b^2 = c^2 \\ 5^2 + 12^2 = c^2 \\ 25 + 144 = c^2 \\ 169 = c^2 \\ \sqrt{169} = \sqrt{c^2} \\ 13 = c \end{array}$$



Pythagorean Theorem

$$\begin{array}{l} a^2 + b^2 = c^2 \\ 16 + 9 = 25 \end{array}$$