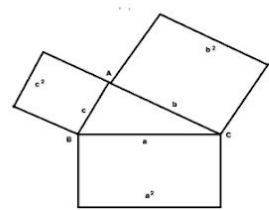


Pythagoras Theorem

Pythagorean theorem is a theorem of a great mathematician namely Theorem. When a triangle has a right angle (90°) and squares are made on each of the three sides then the biggest square has the exact same area as the other two squares. It is called It can be written in one short equation: $a^2 = b^2 + c^2$



Example 1

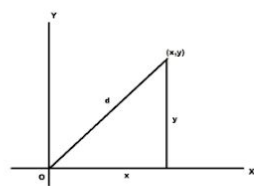
Calculate the hypotenuse a when the sides are b = 5 cm and c = 12 cm

Solution:

$$\begin{aligned} a^2 &= b^2 + c^2 \\ &= 5^2 + 12^2 \\ &= 25 + 144 \\ &= 169 \end{aligned}$$

Therefore, $\sqrt{169} = 13$ cm

The distance d of a point (x,y) from the origin.



According to the Pythagorean theorem, and the meaning of the rectangular coordinates (x, y), $d^2 = x^2 + y^2$

Therefore, $d = \sqrt{x^2 + y^2}$

Example 2

How far from the origin is the point (4, -2)?

Solution:

$$\begin{aligned} d &= \sqrt{4^2 + (-2)^2} \\ &= \sqrt{16 + 4} \\ &= \sqrt{20} \end{aligned}$$