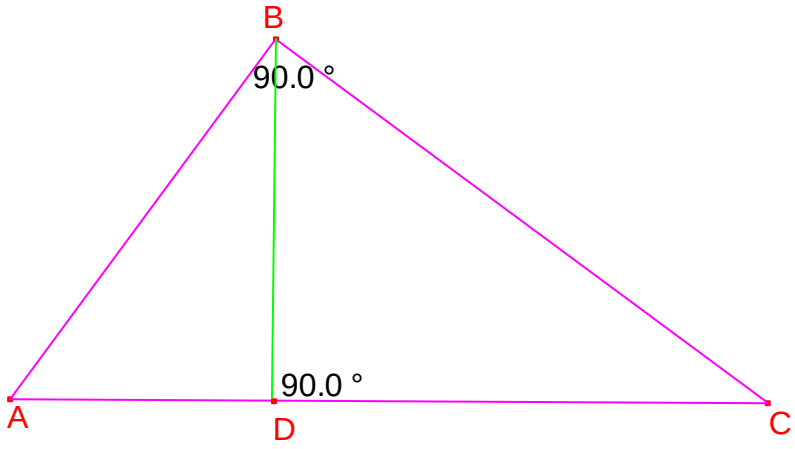
Proof of Pythagoras Theorem



Triangle ABC is drawn with angle ABC = 90^0. BD is drawn such that it is perpendicular to AC.

As a result, $\Delta ABC \sim \Delta ADB$ (ie, ΔABC and ΔADB are similar triangles. Do you know why?)

Therefore, $\frac{AB}{AD} = \frac{AC}{AB}$ why?

So, $AB^2 = AC.AD$ why? (1)

Likewise, $\Delta ABC \sim \Delta BDC$ why?

Hence $\frac{BC}{AC} = \frac{DC}{BC}$ why?

So, $BC^2 = AC.DC$ why? (2)

Now, add equations (1) and (2) to get:

$$AB^2 + BC^2 = AC.AD + AC.DC$$

$$= AC(AD + DC) \quad \text{why?}$$

$$= AC^2 \quad \text{why?}$$

$$\therefore AB^2 + BC^2 = AC^2 \quad \text{as required.}$$