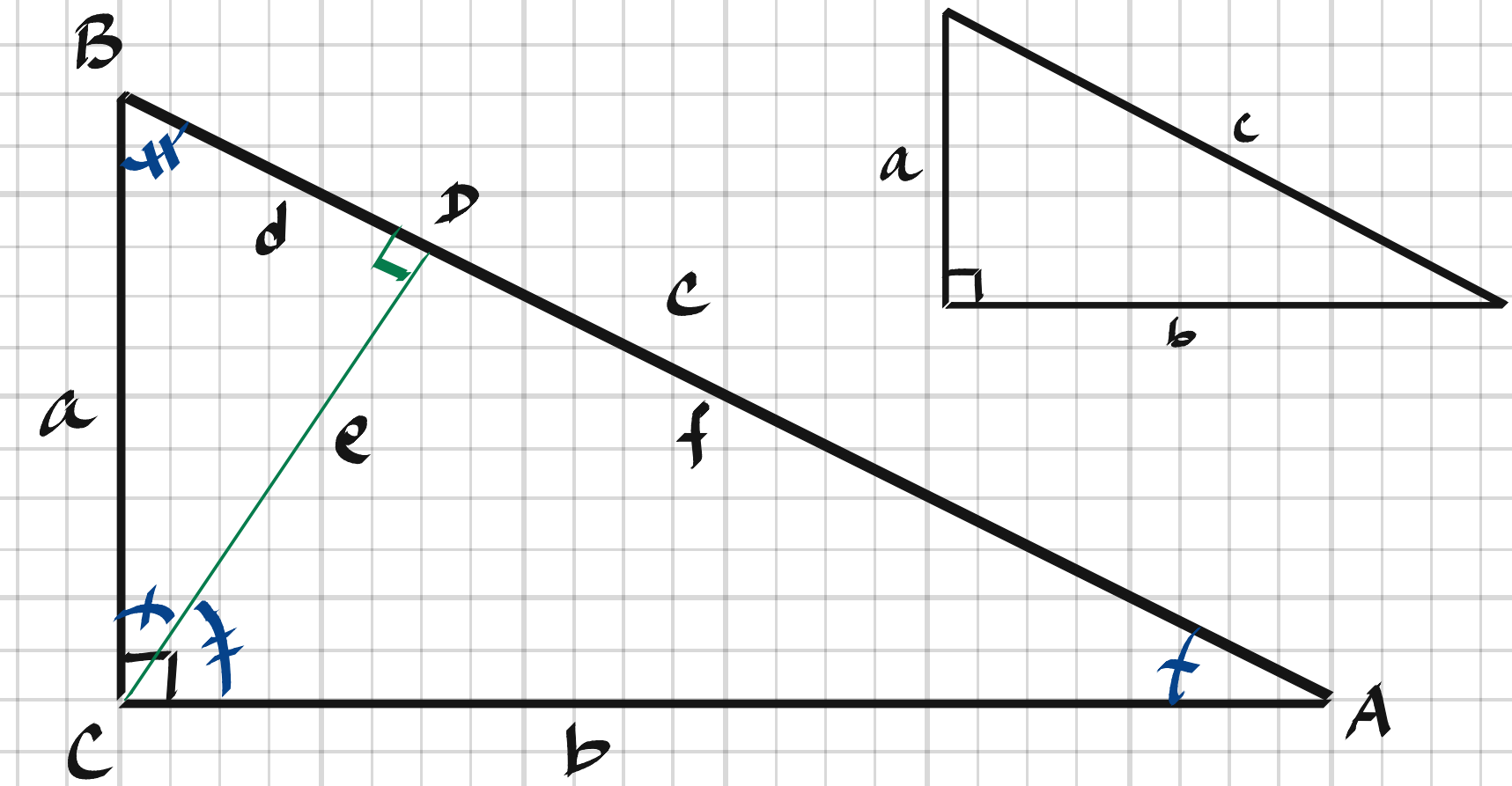
Pythagoras sats



$\Delta ABC \sim \Delta ACD \sim \Delta BCD \Rightarrow$

$$\frac{c}{a} = \frac{a}{d} \Rightarrow a^2 = cd \quad (1)$$

$$\frac{c}{b} = \frac{b}{f} \Rightarrow b^2 = cf = c(c-d) = c^2 - cd \quad (2)$$

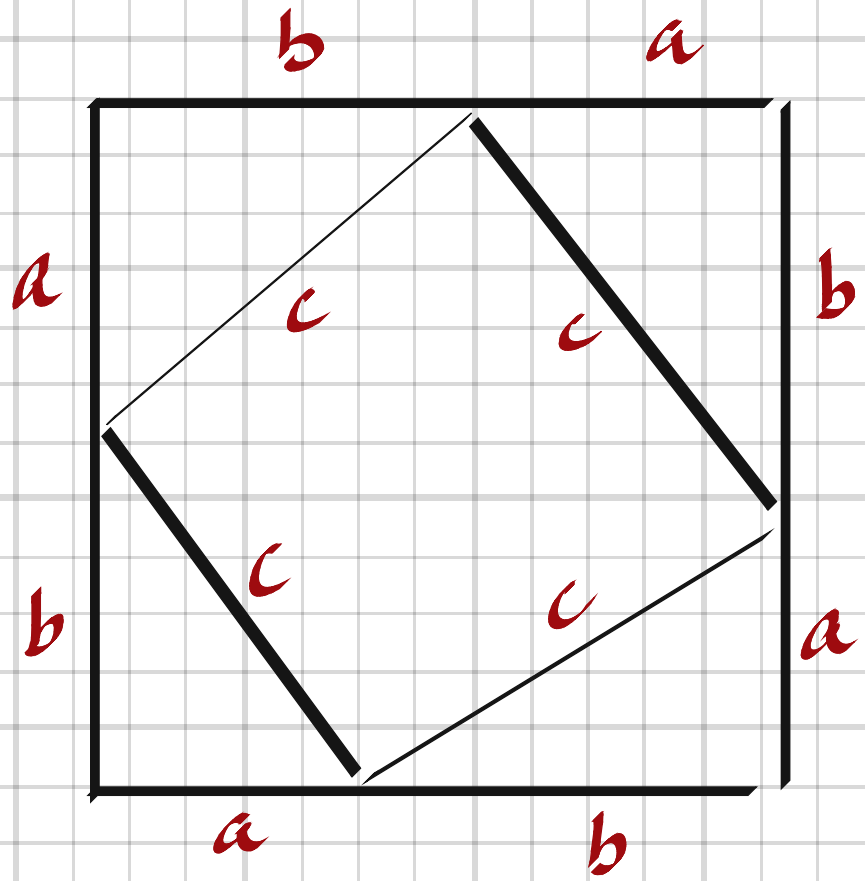
(1): $d = \frac{a^2}{c}$

(2): $d = \frac{c^2 - b^2}{c}$

$$\left.\begin{array}{l} d = \frac{a^2}{c} \\ d = \frac{c^2 - b^2}{c} \end{array}\right\} \frac{a^2}{c} = \frac{c^2 - b^2}{c} \Rightarrow$$

$$\boxed{c^2 = a^2 + b^2}$$

Alt. 2



$$(a+b)^2 = 4\frac{ab}{2} + c^2$$

$$a^2 + 2ab + b^2 = 2ab + c^2 \quad \Rightarrow$$

$$\boxed{c^2 = a^2 + b^2}$$