

Relações Métricas

no

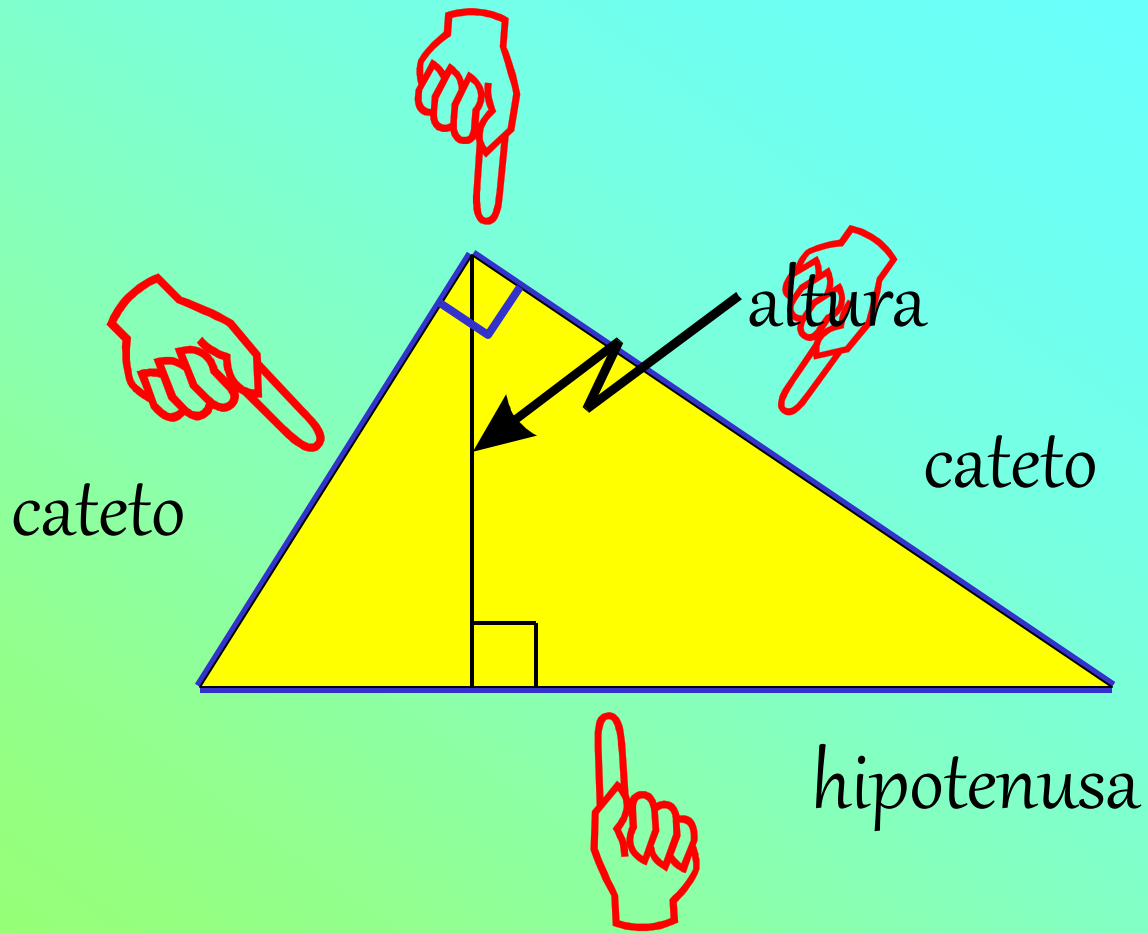


TRIÂNGULO

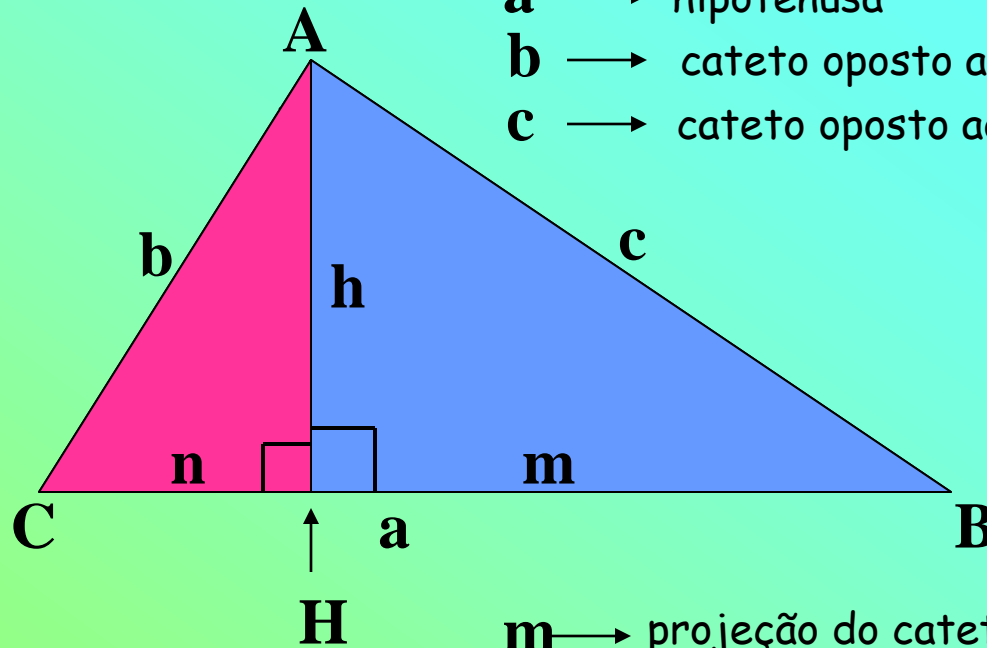
RETÂNGULO

ESTUDO 1 PP

Ledo V. Machado

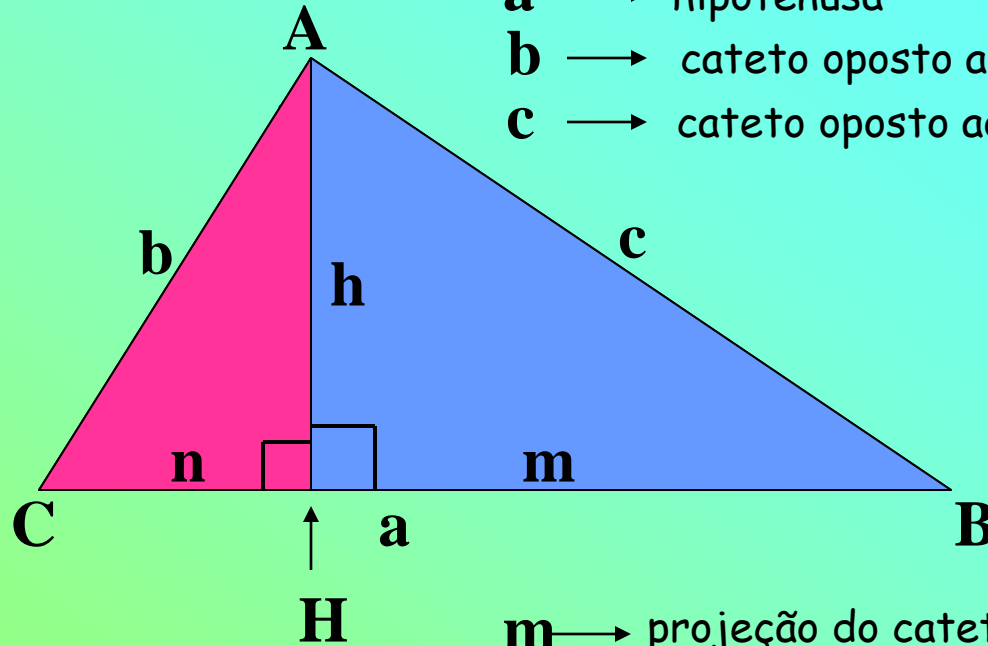


A, B e C → vértices do triângulo
H → pé da altura relativa à hipotenusa
a → hipotenusa
b → cateto oposto ao vértice **B**
c → cateto oposto ao vértice **C**

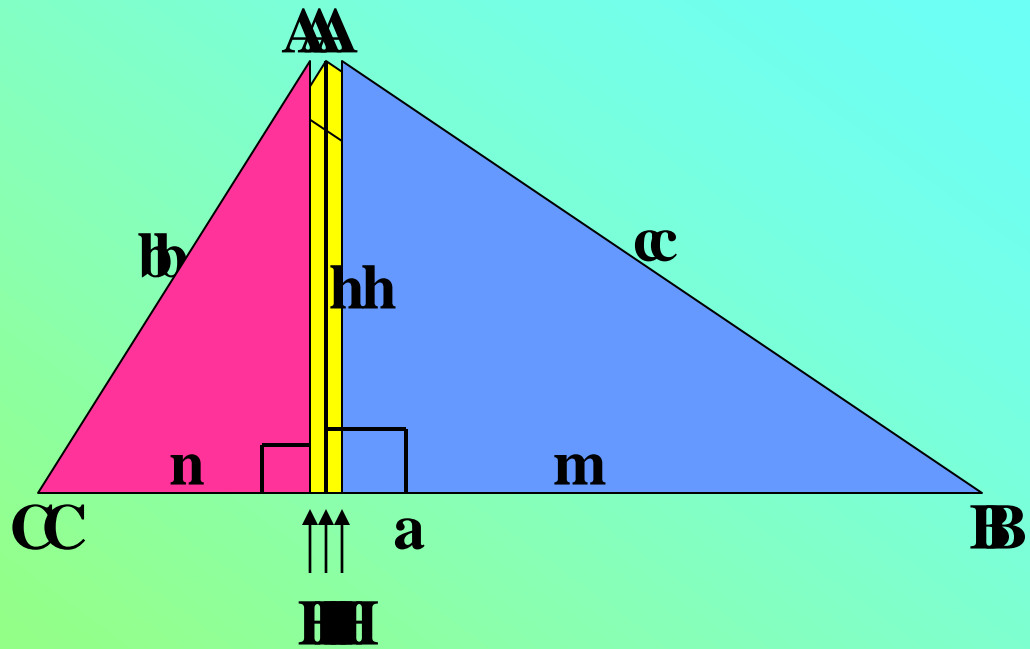


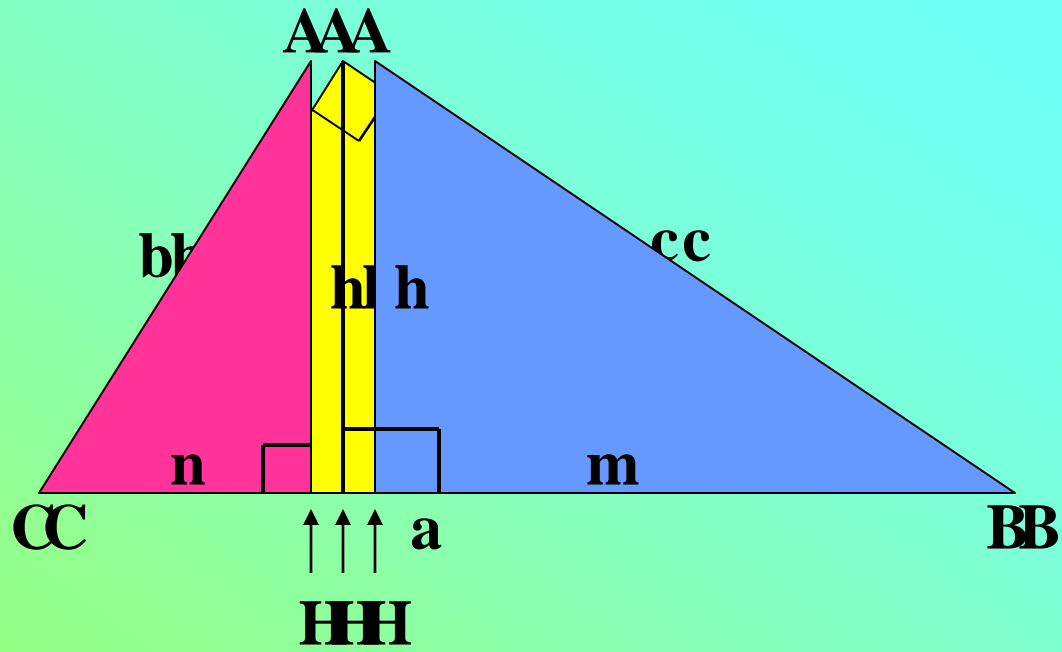
m → projeção do cateto **C** sobre a hipotenusa
n → projeção do cateto **b** sobre a hipotenusa
h → altura relativa à hipotenusa

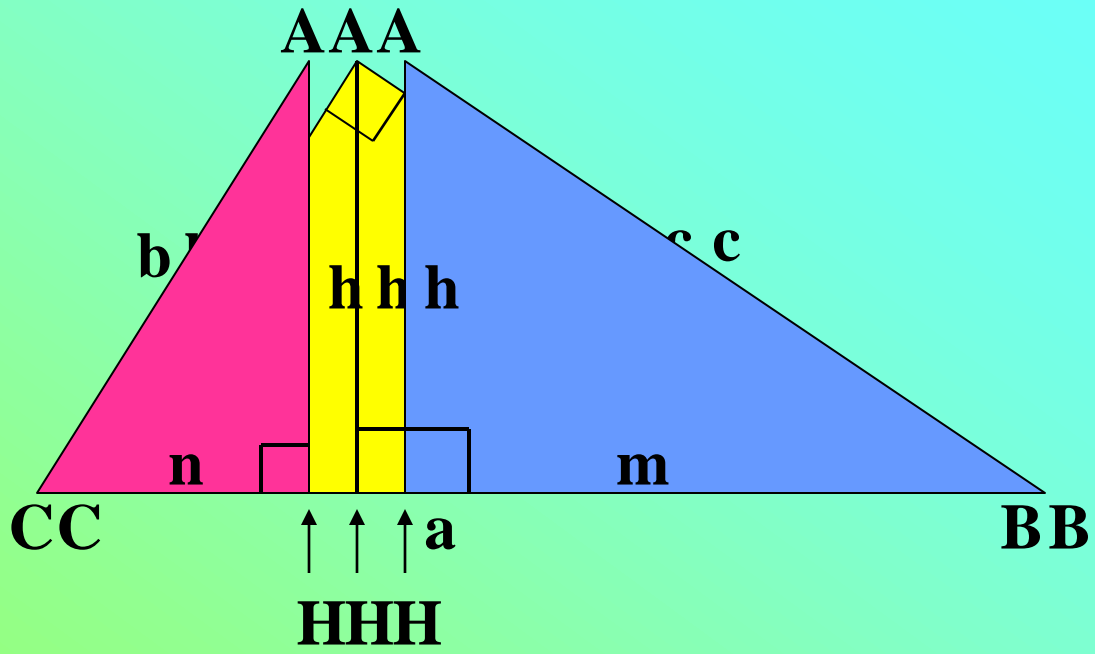
A, B e C → vértices do triângulo
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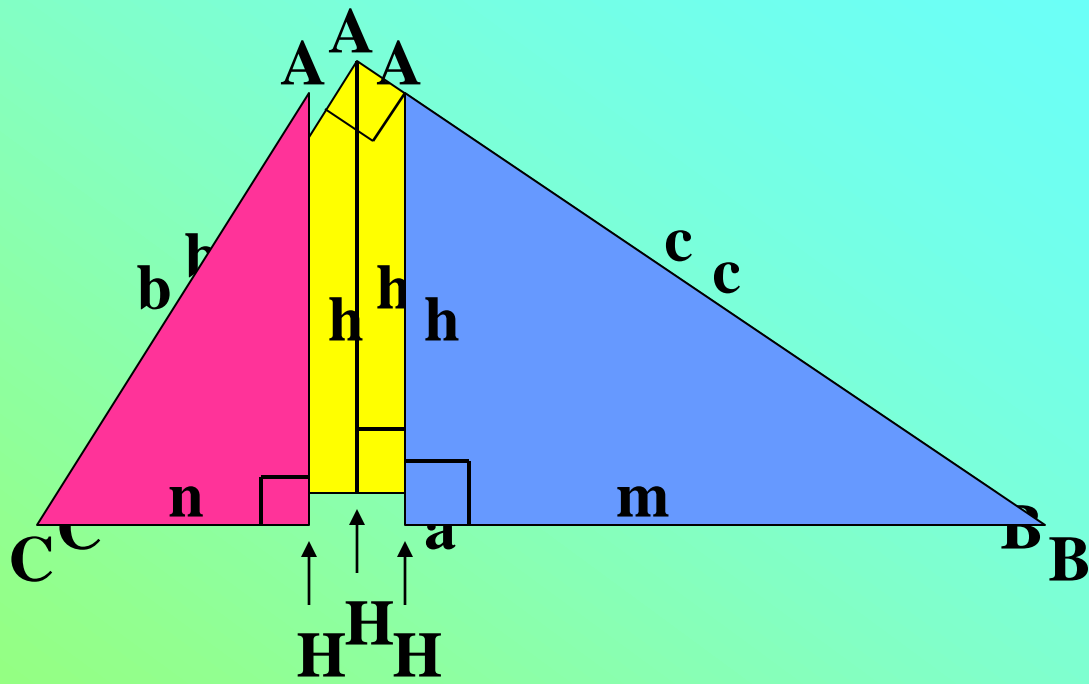


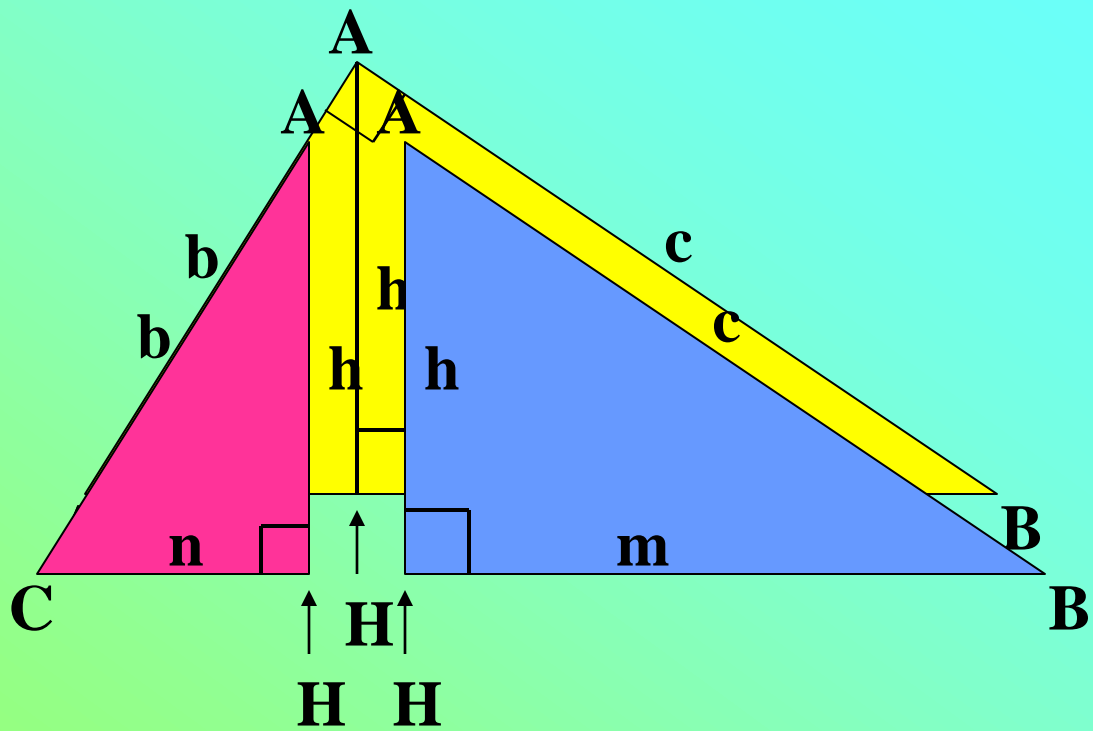
m → projeção do cateto **C** sobre a hipotenusa
n → projeção do cateto **b** sobre a hipotenusa
h → altura relativa à hipotenusa

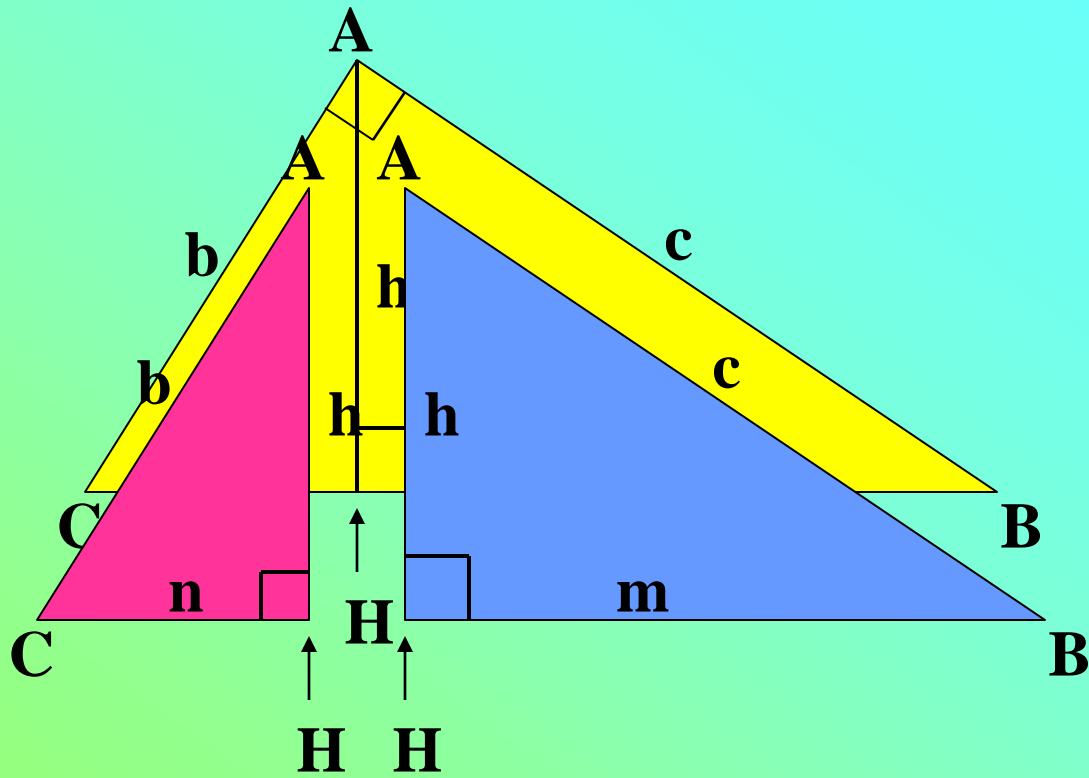


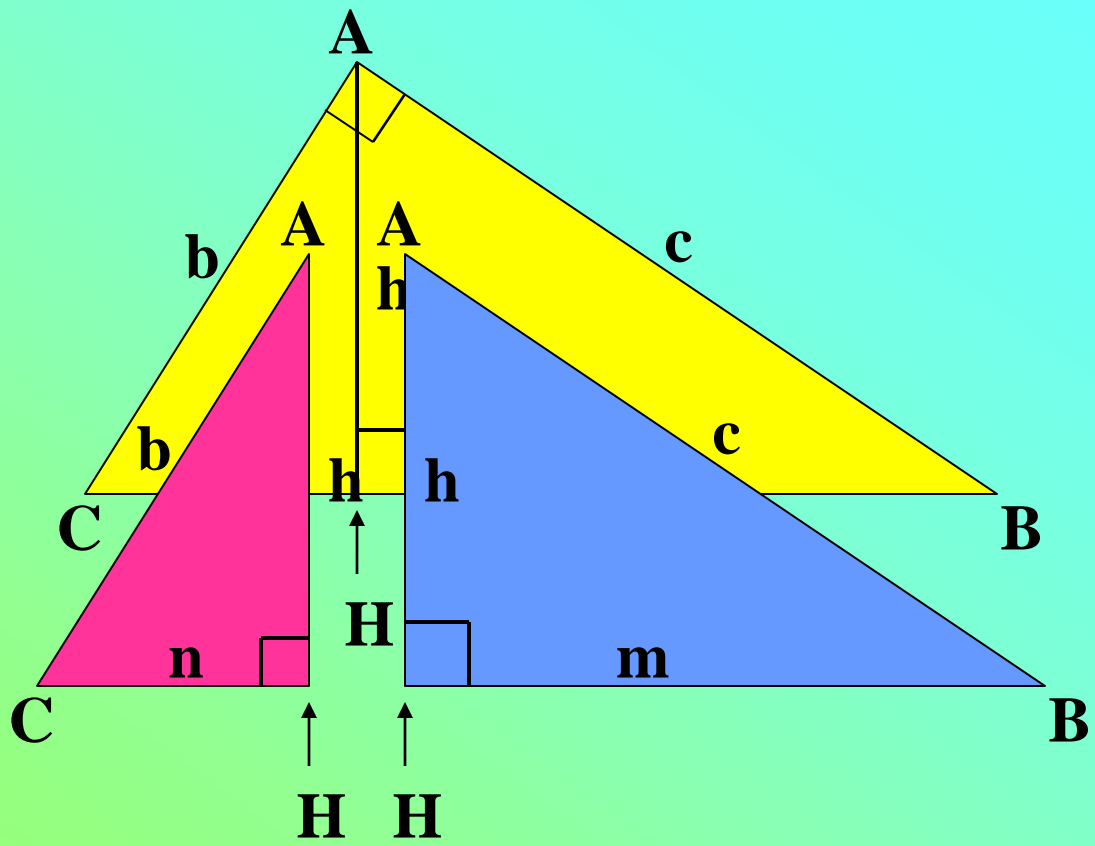


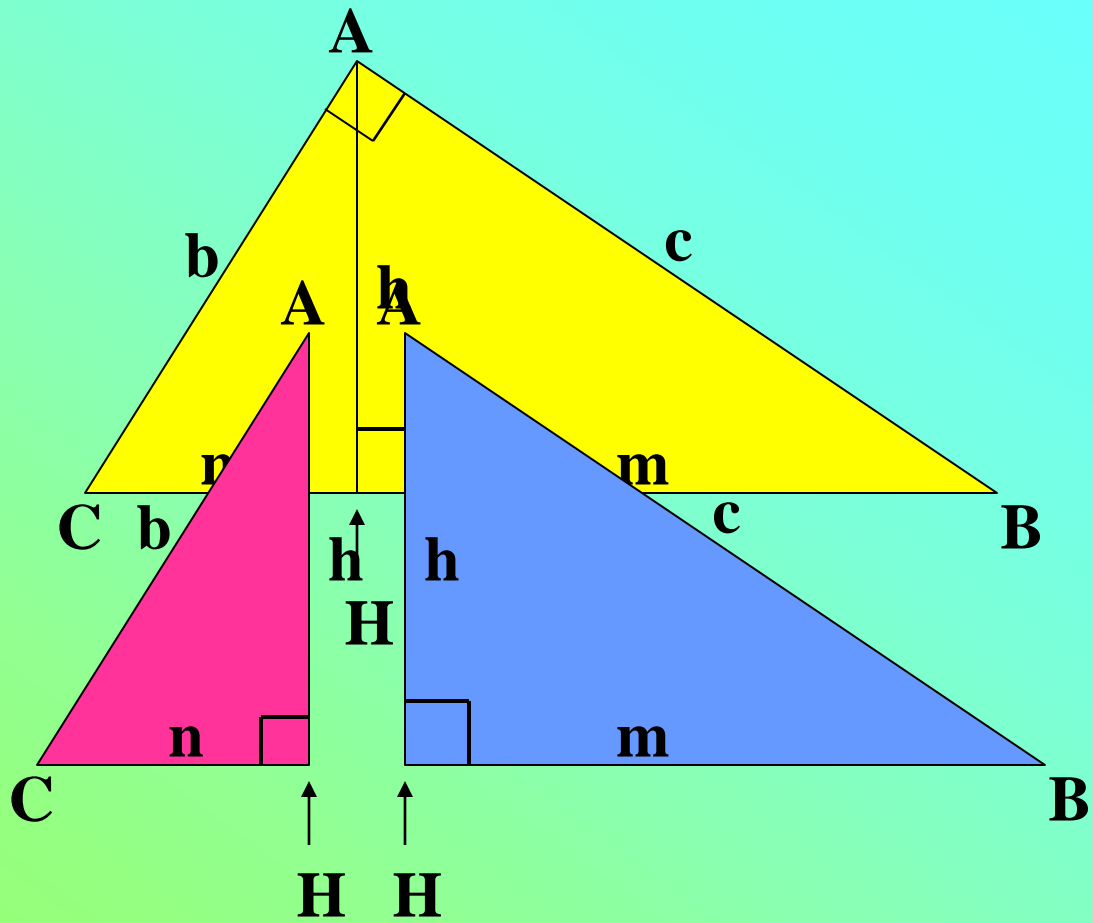


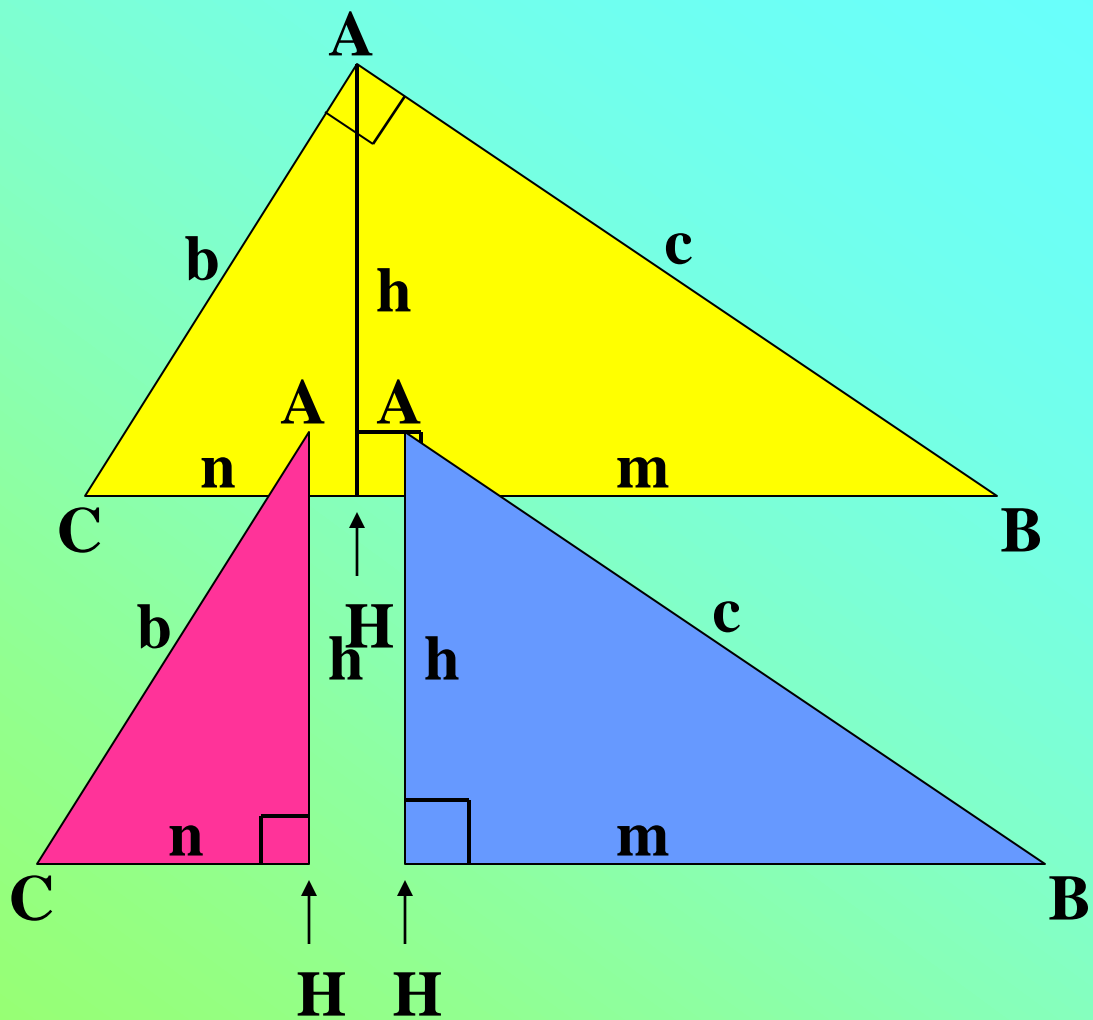


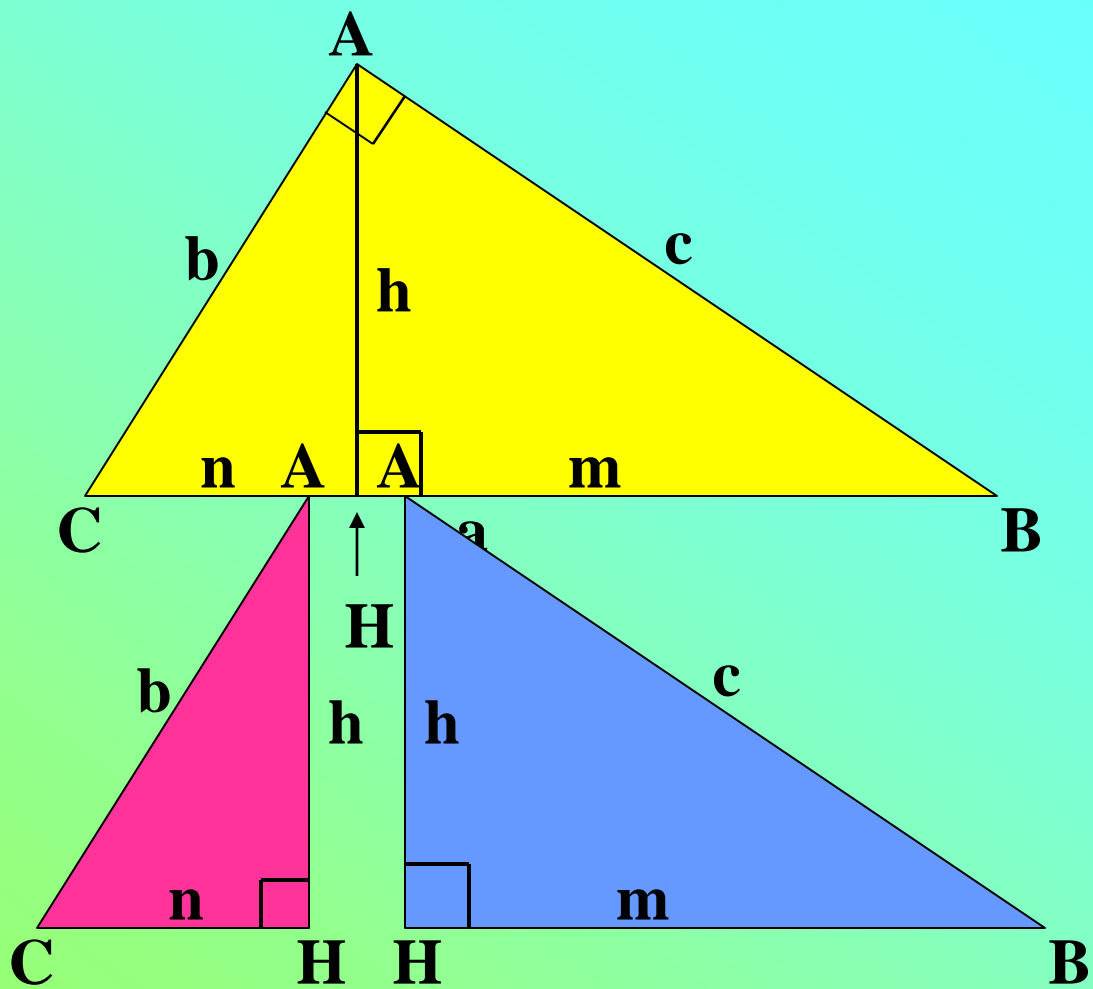


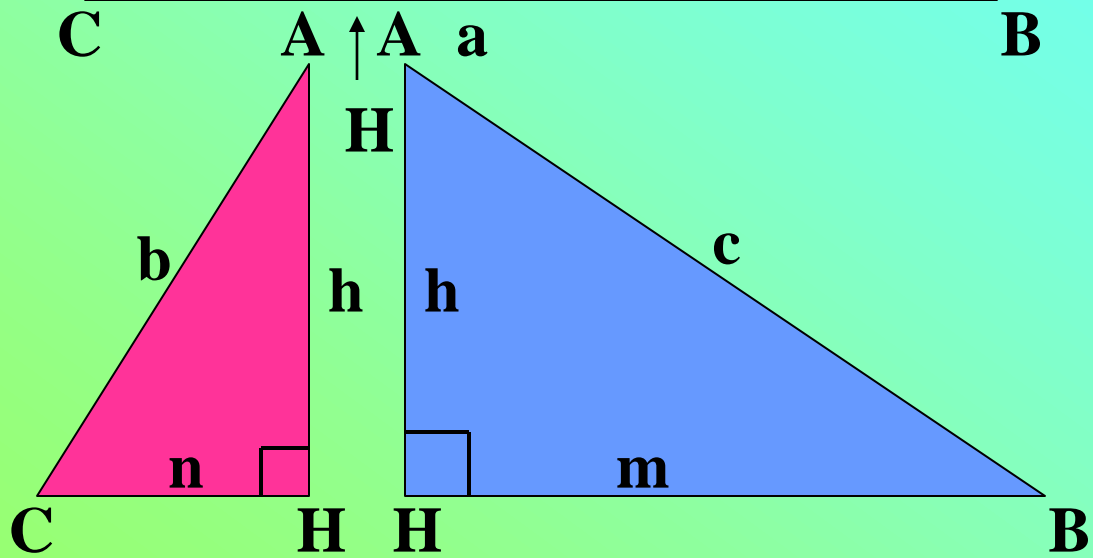
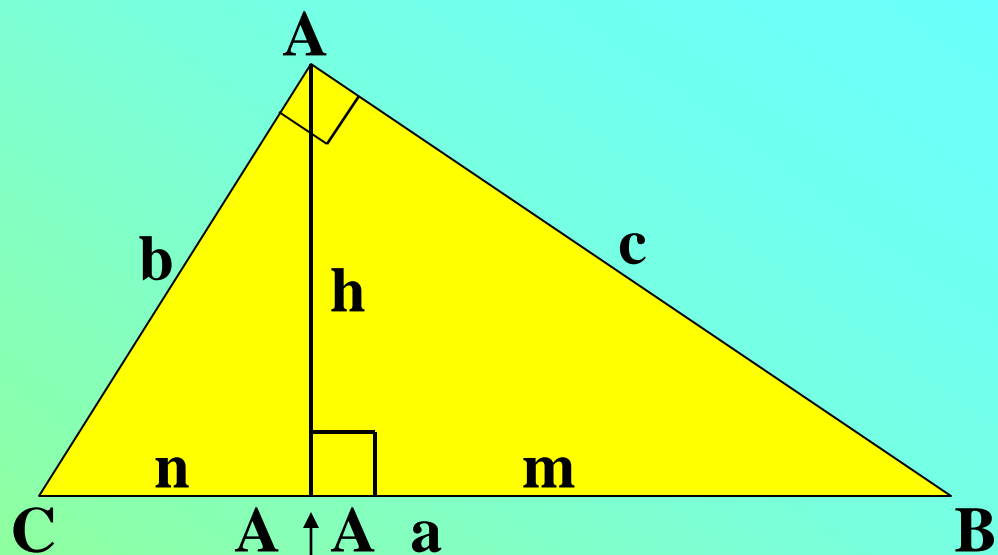


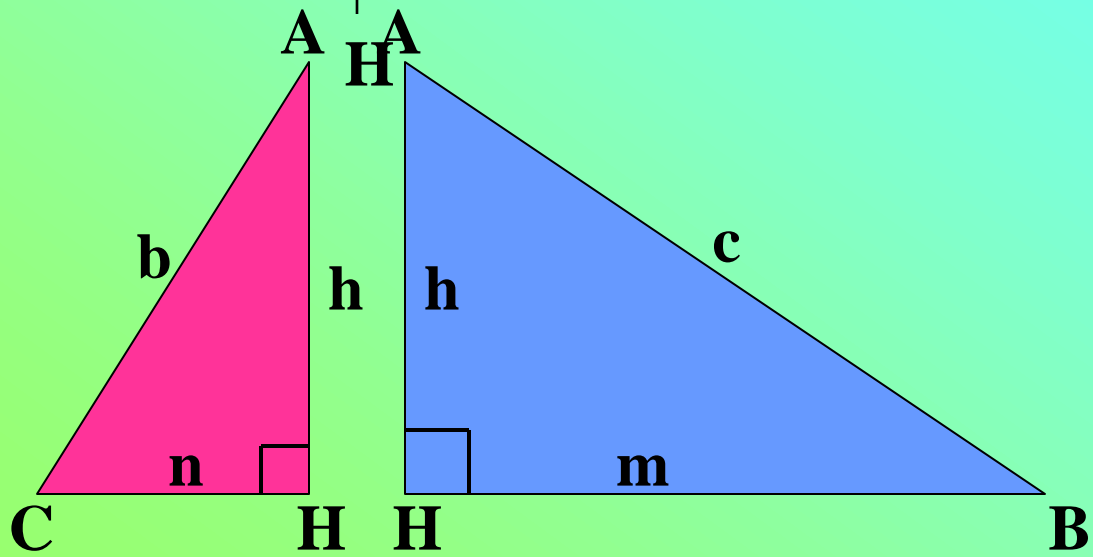
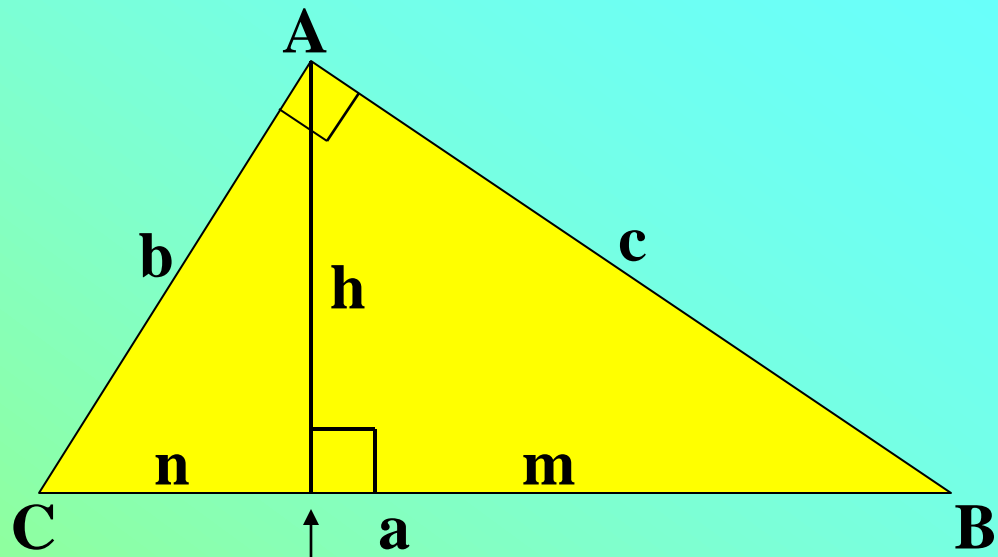


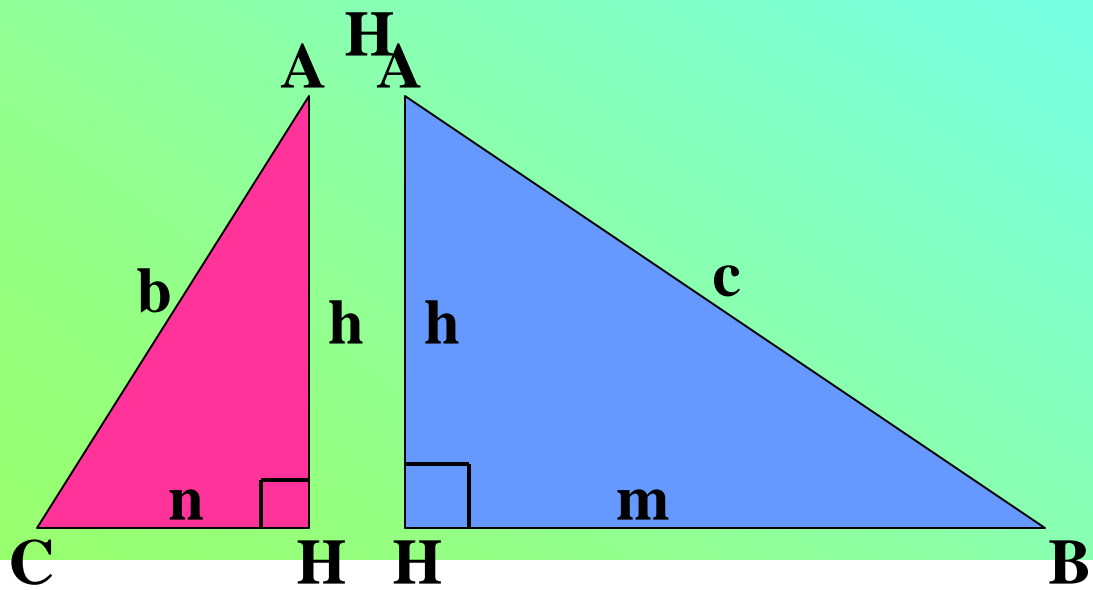
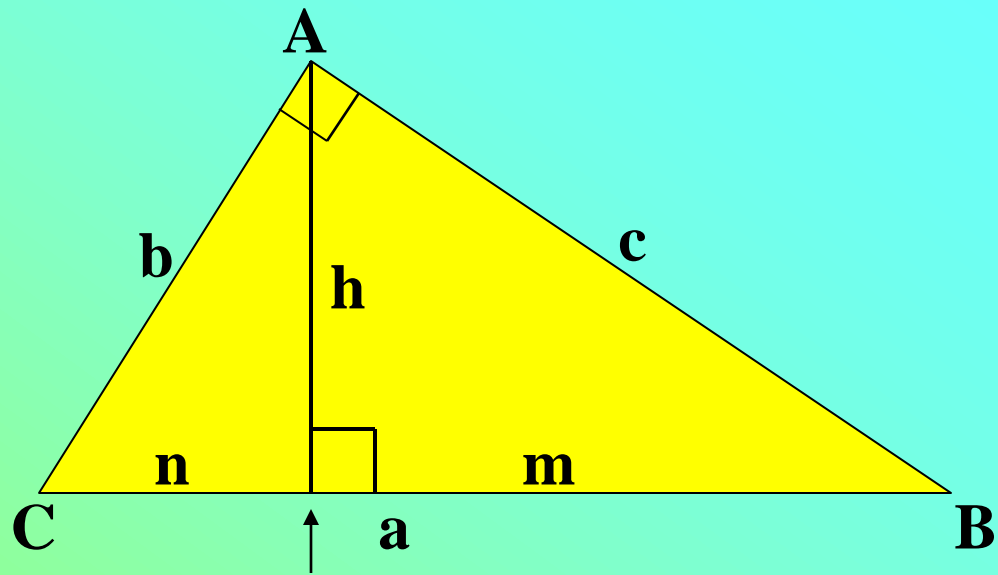


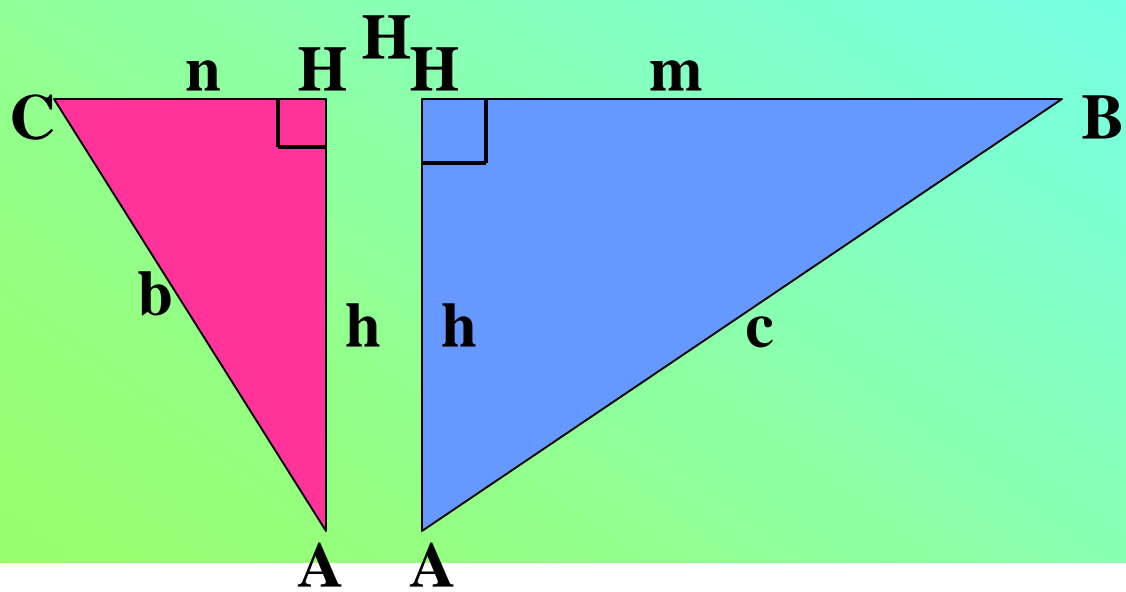
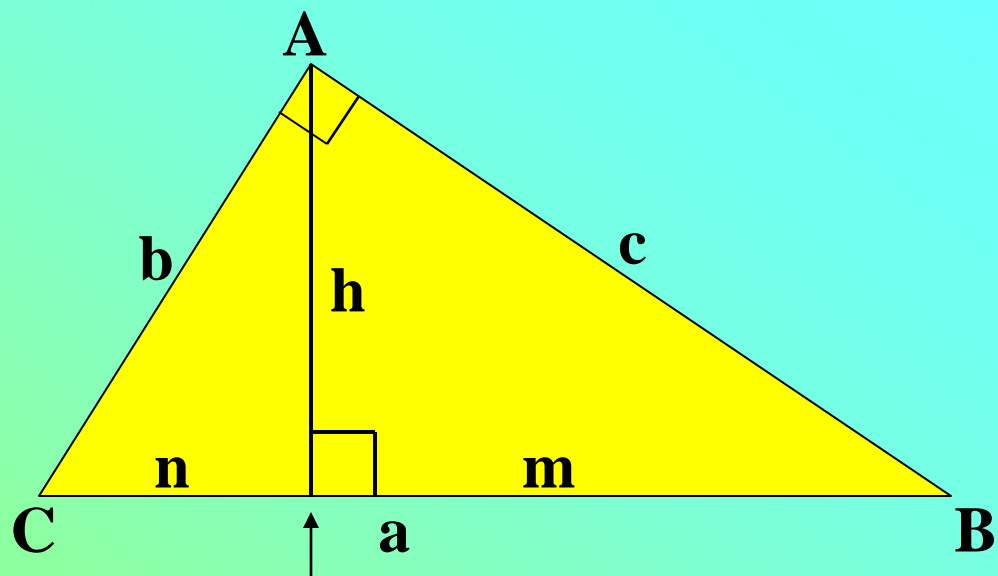


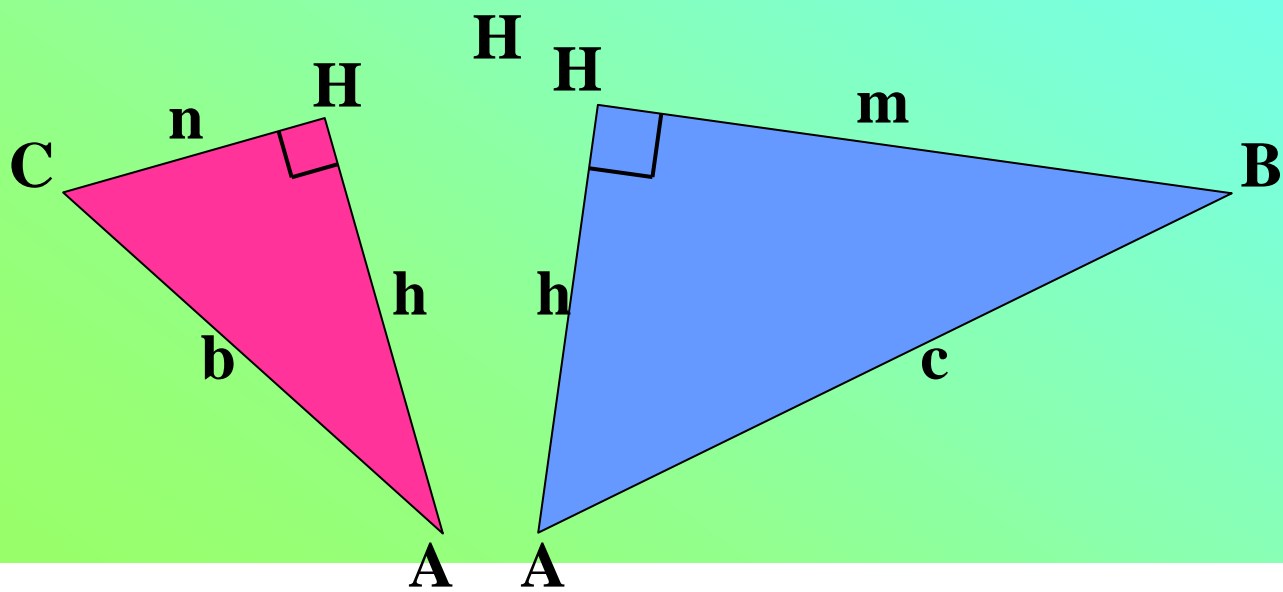
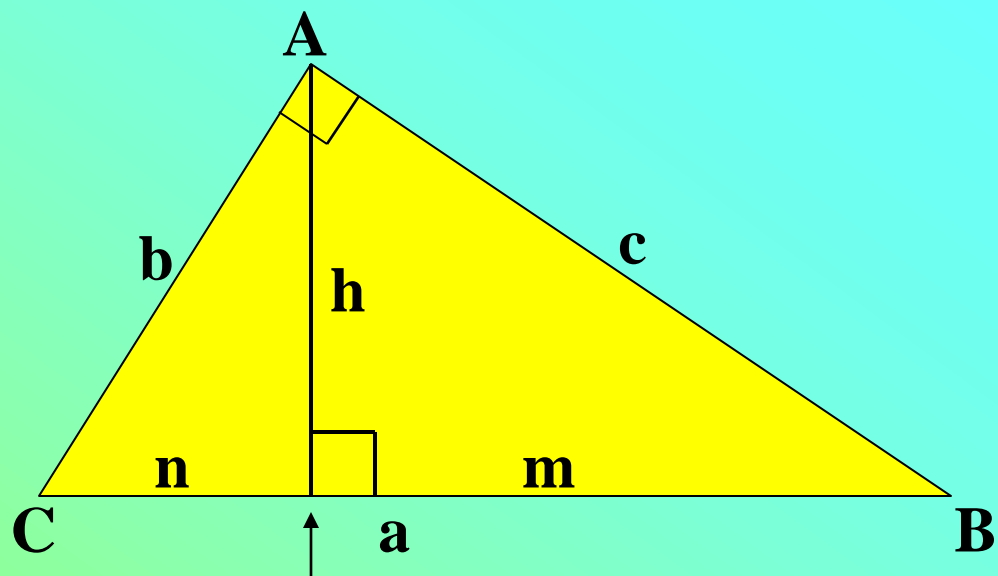


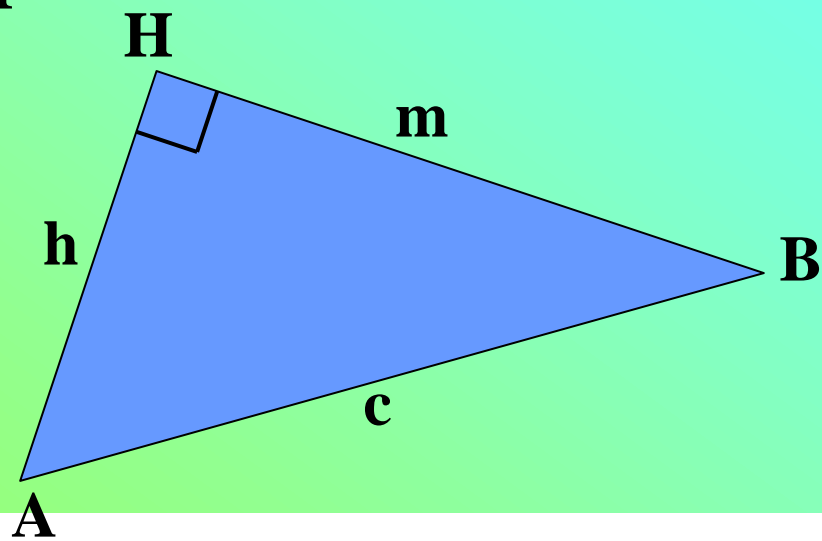
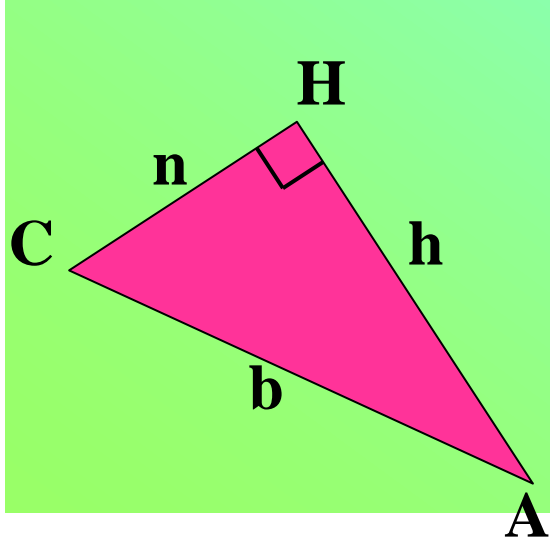
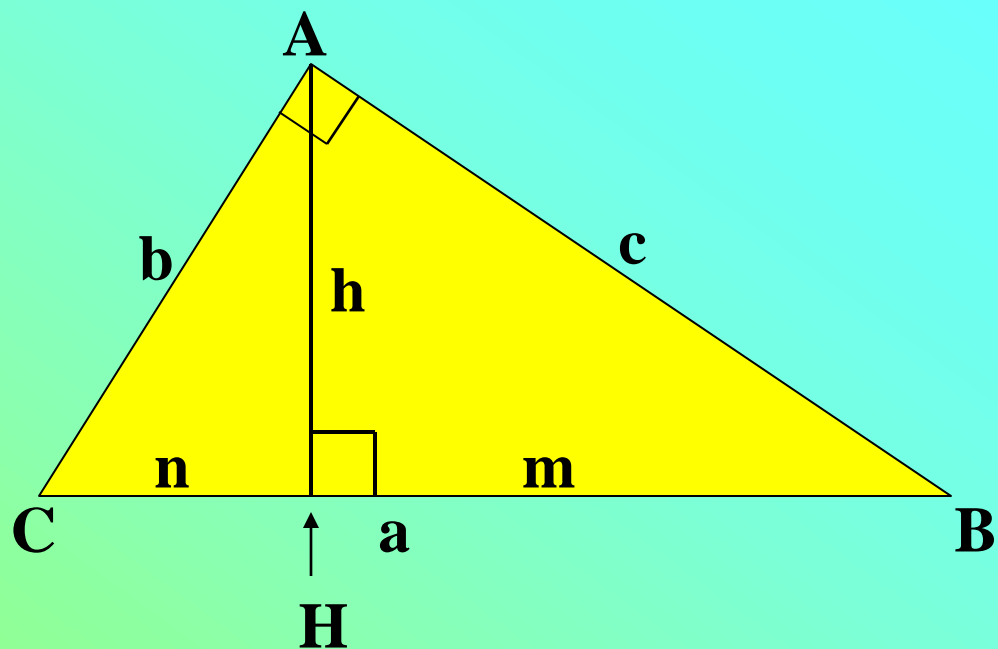


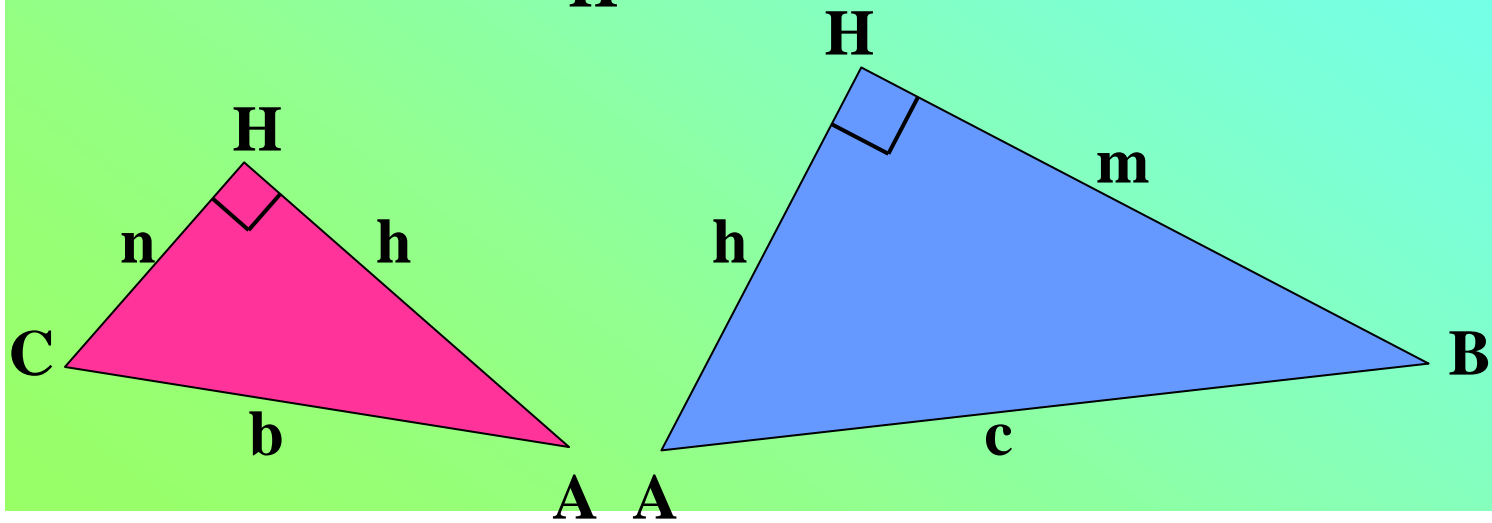
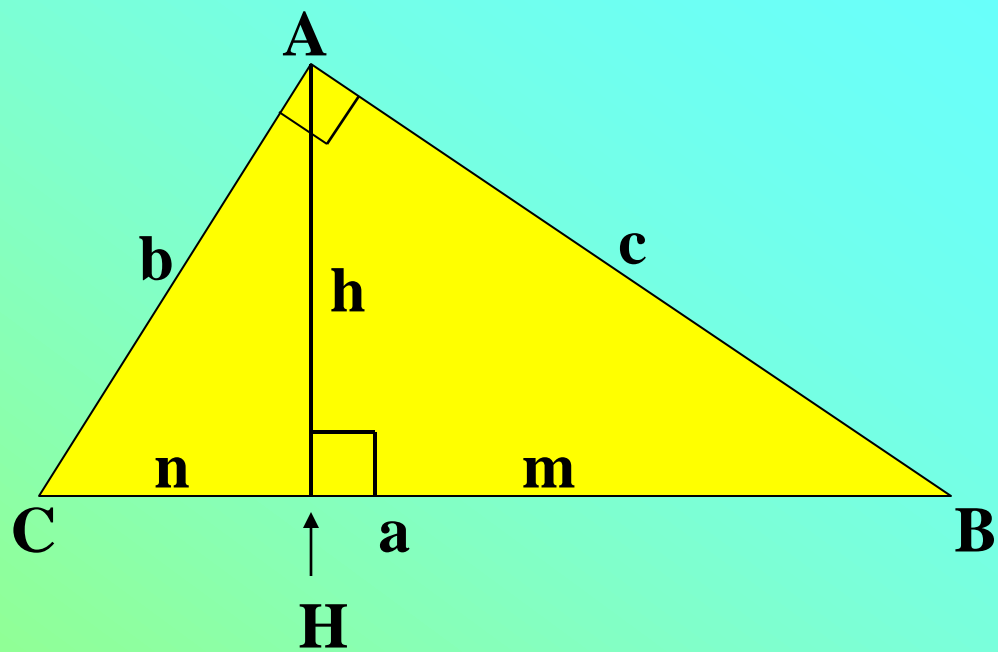


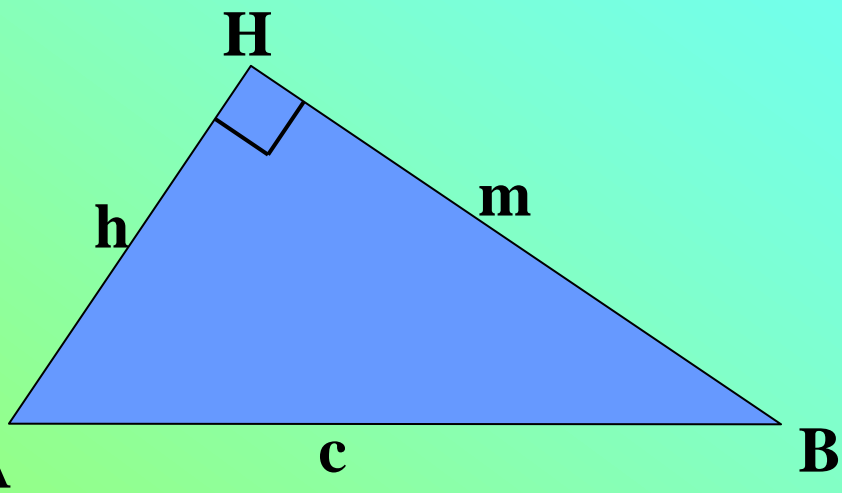
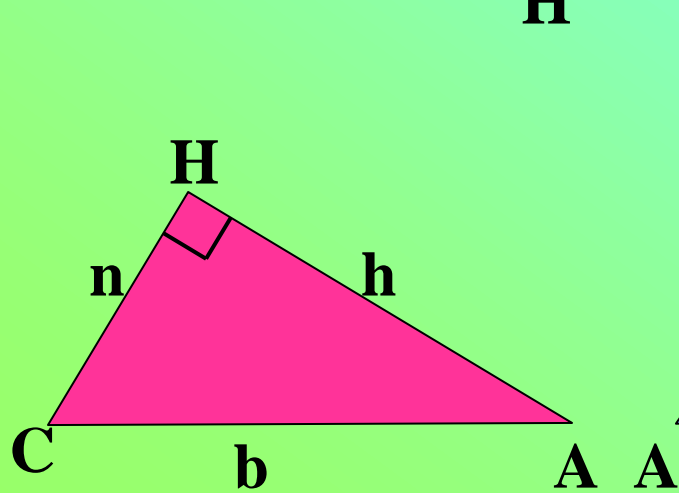
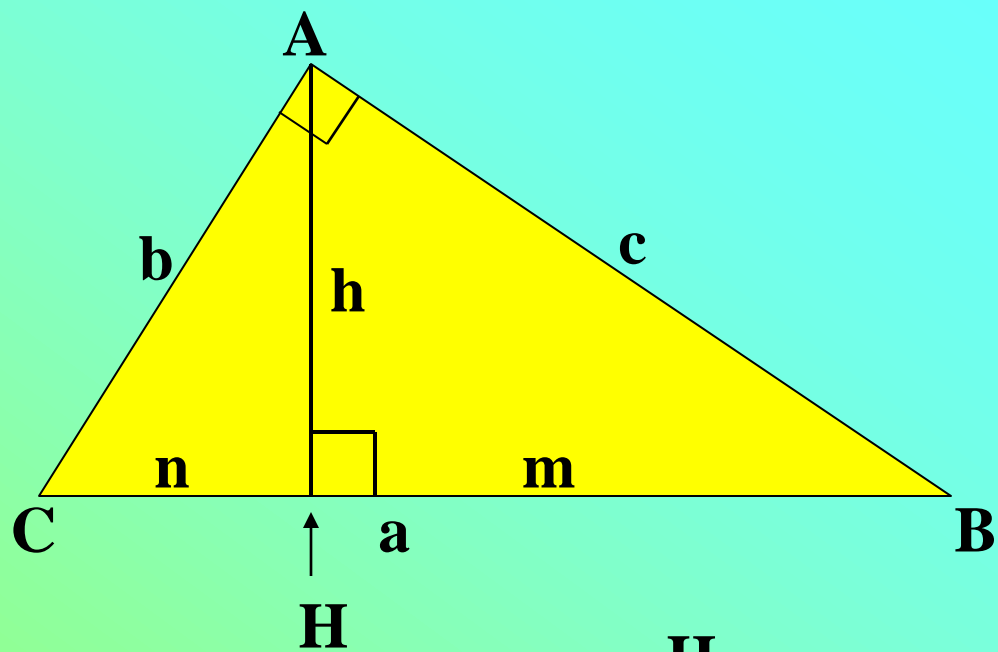


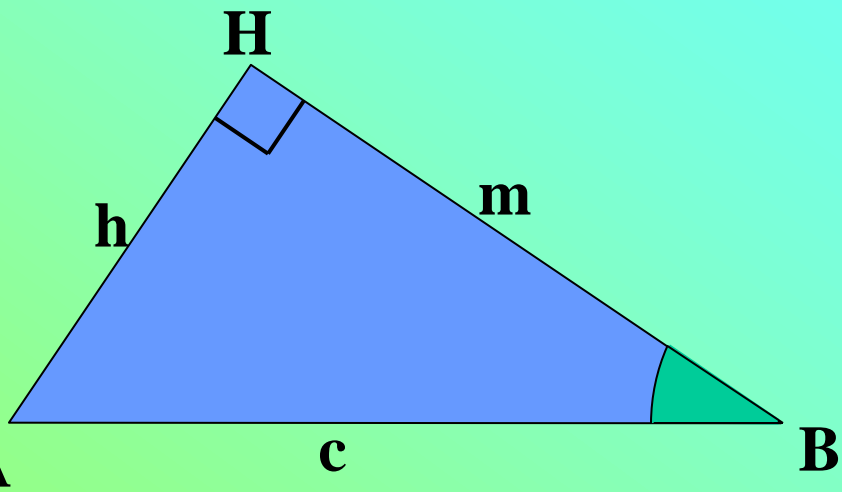
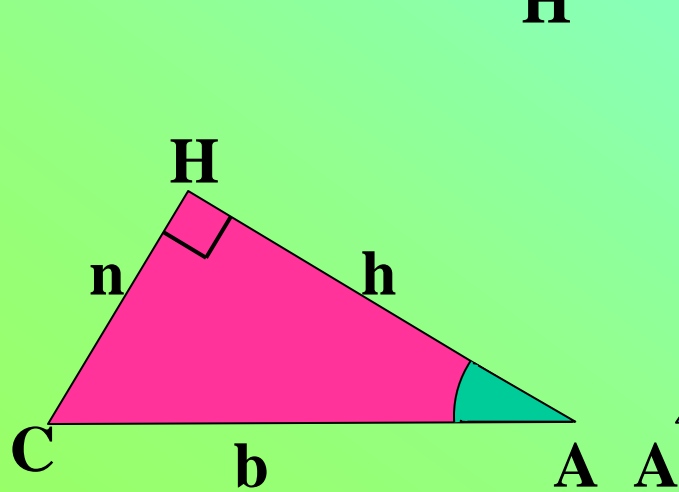
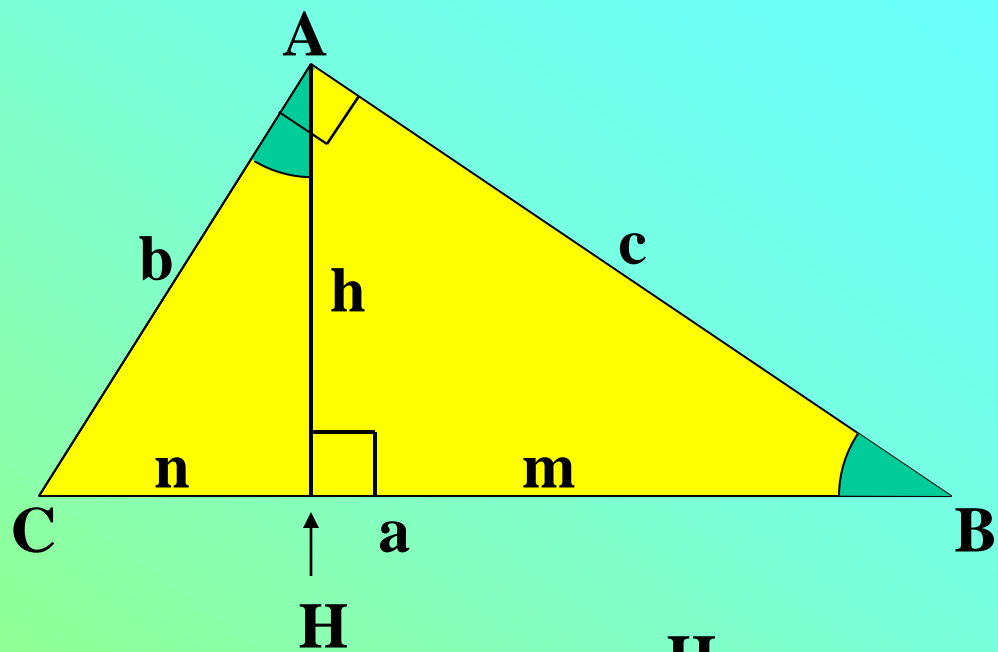


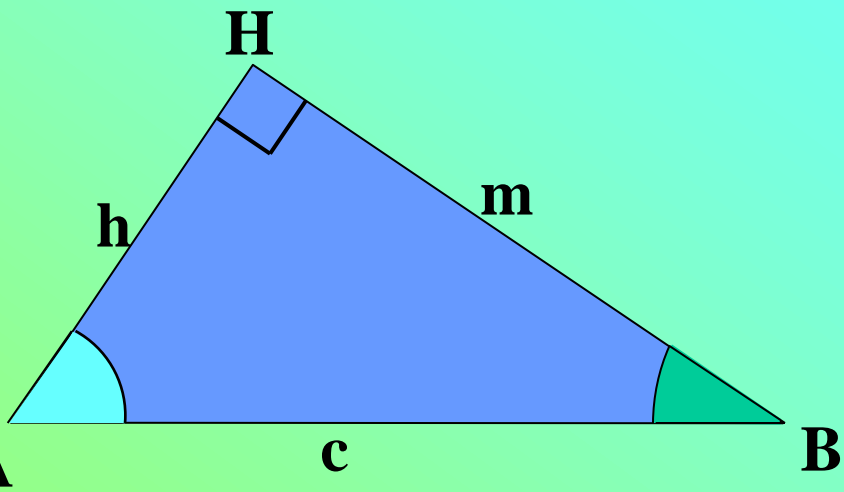
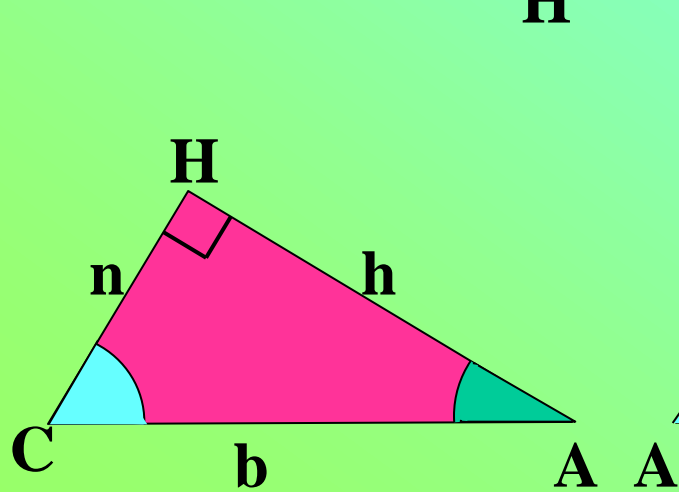
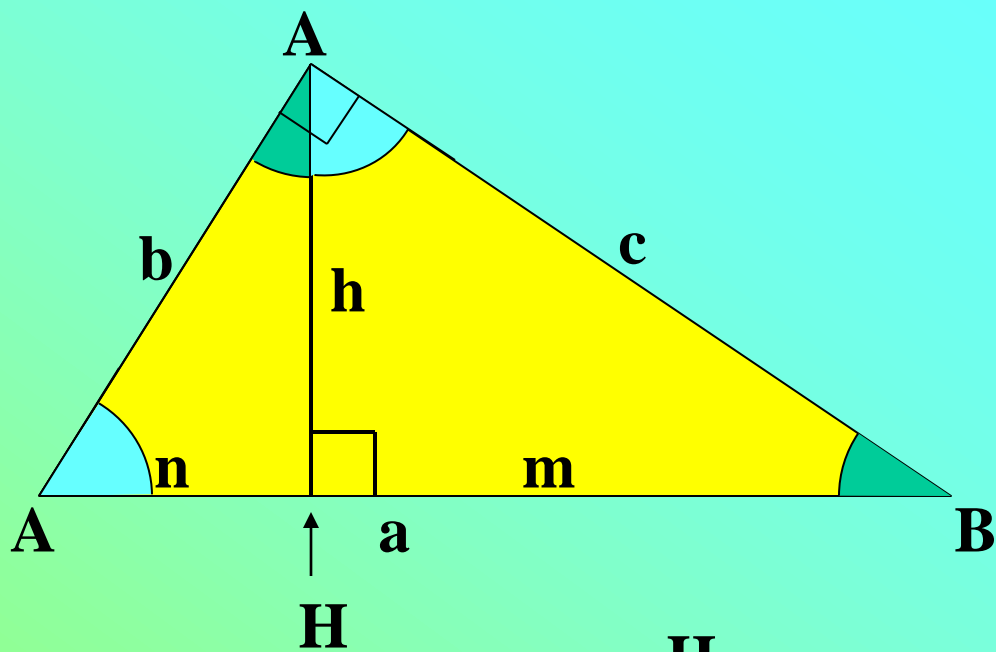


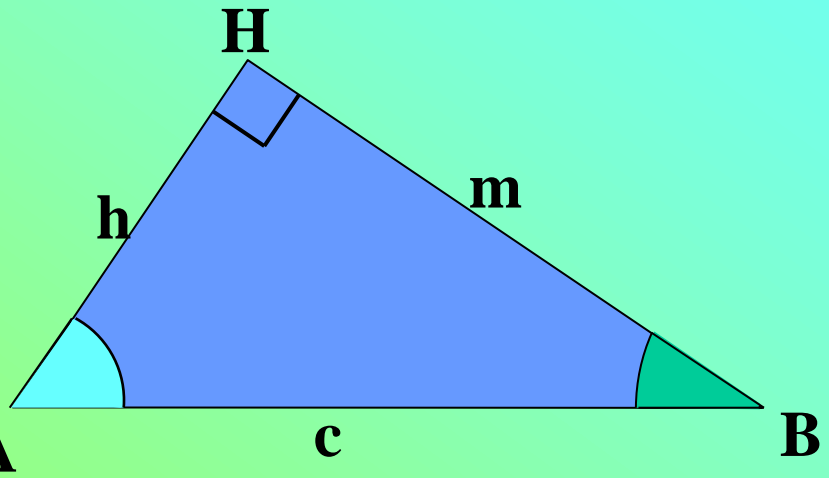
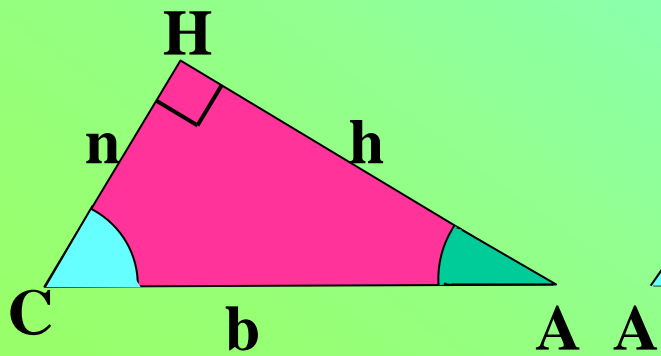
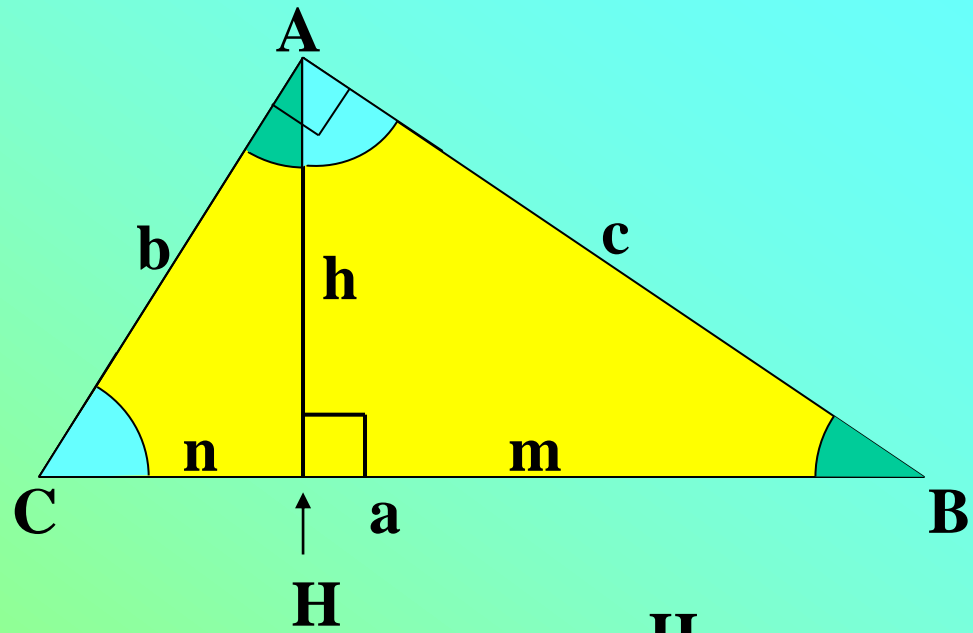


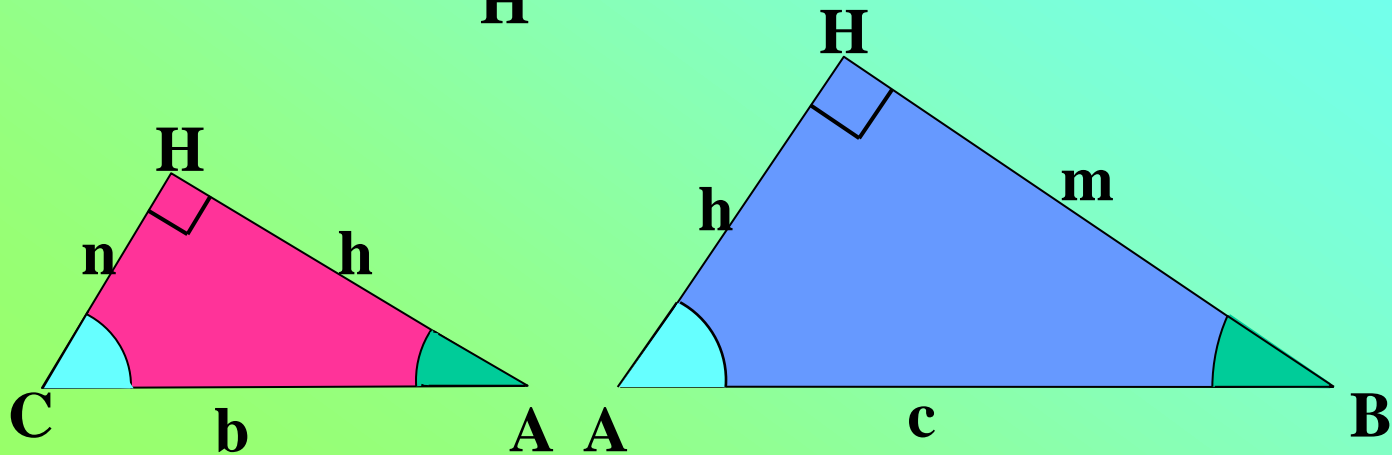
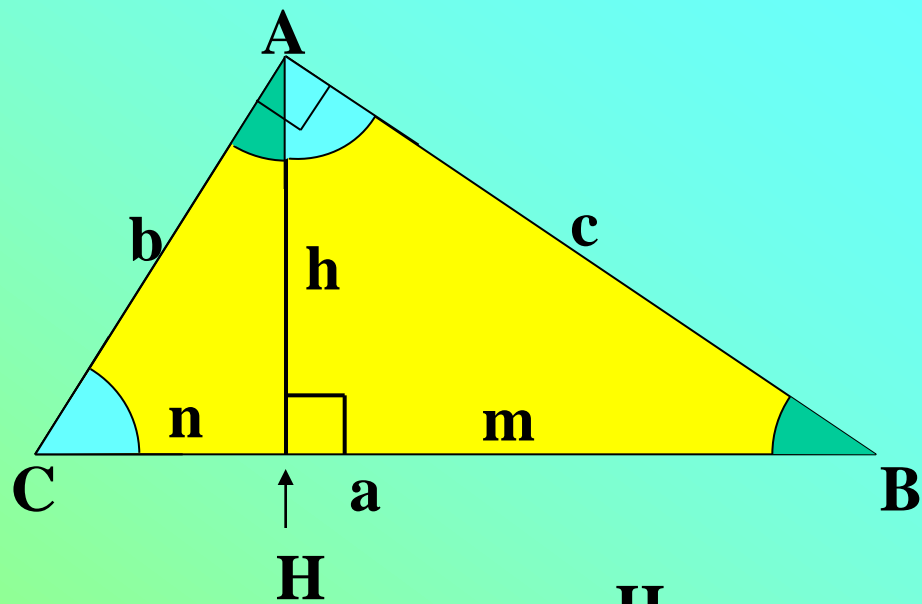


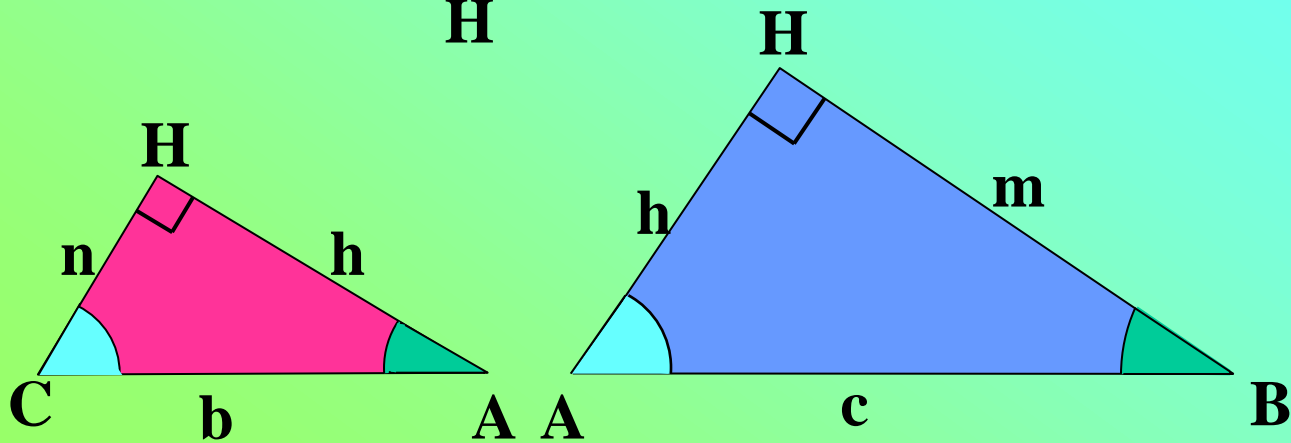
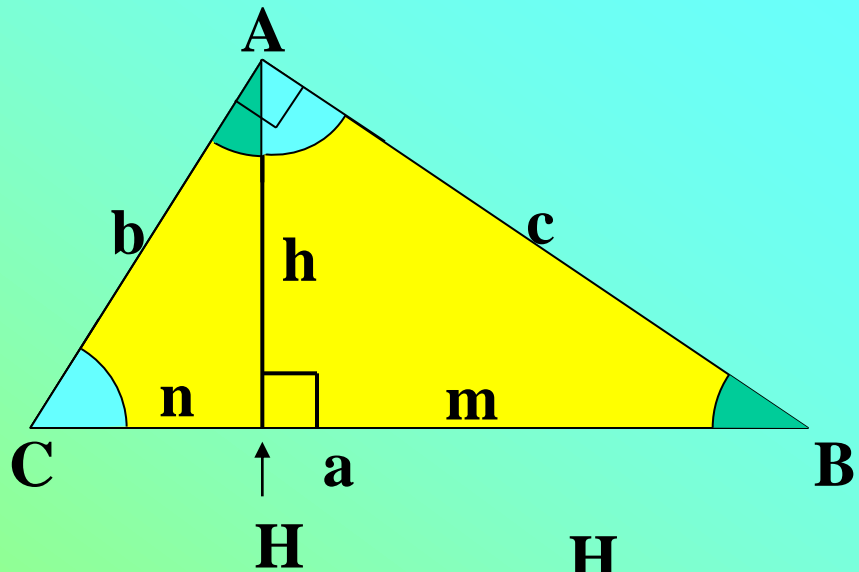


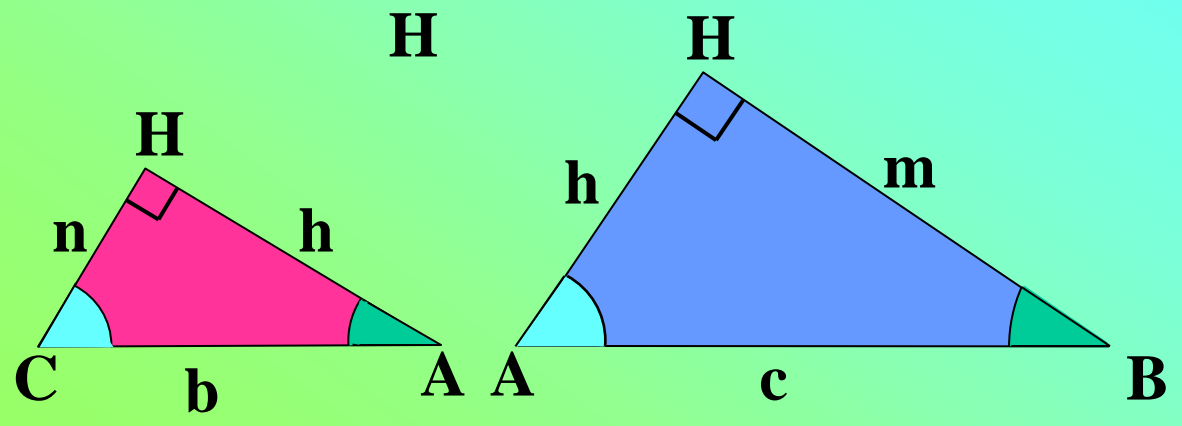
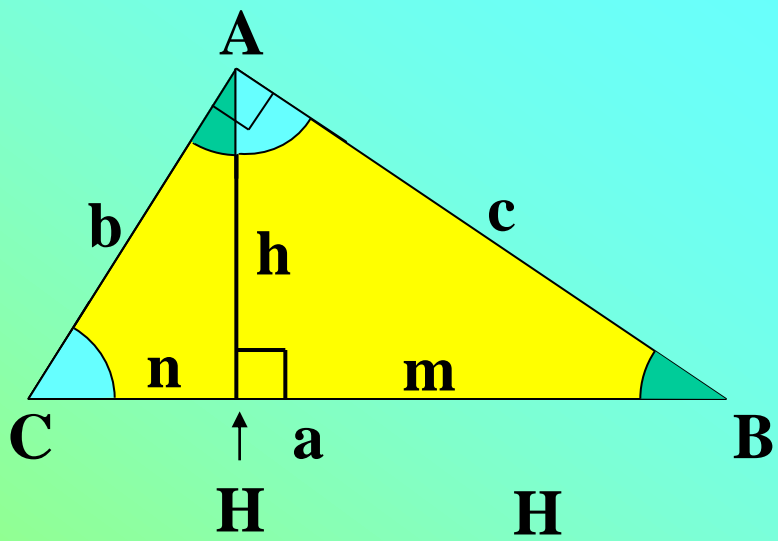


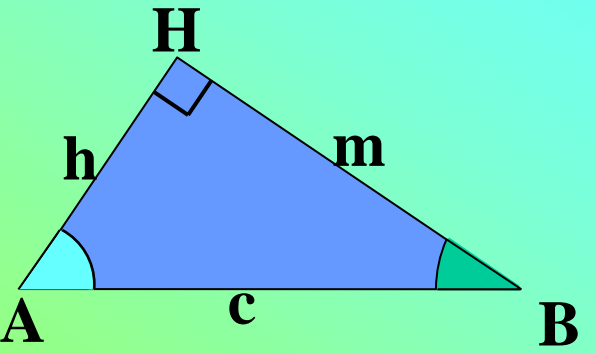
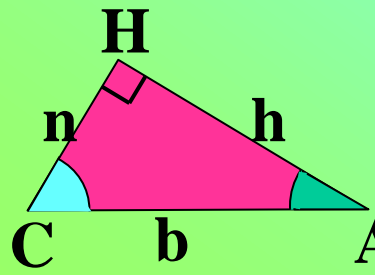
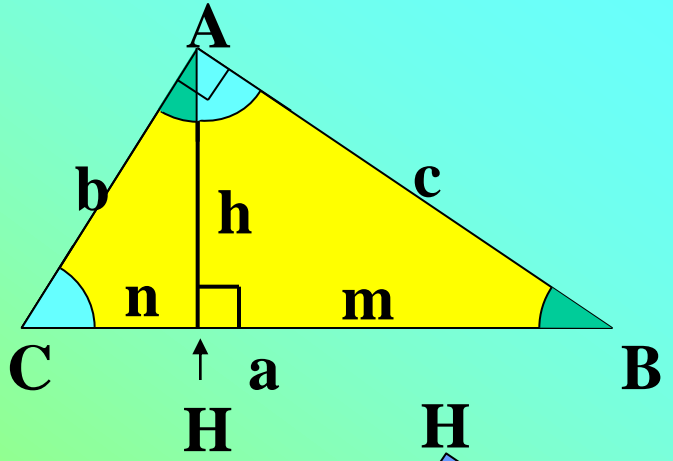








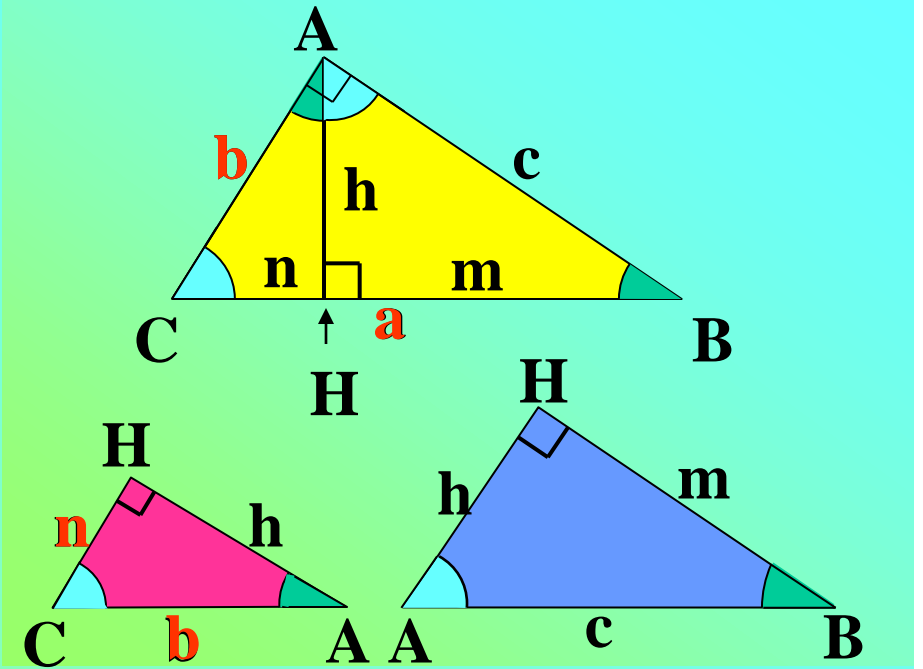




$$\frac{b}{n} = \frac{a}{b}$$

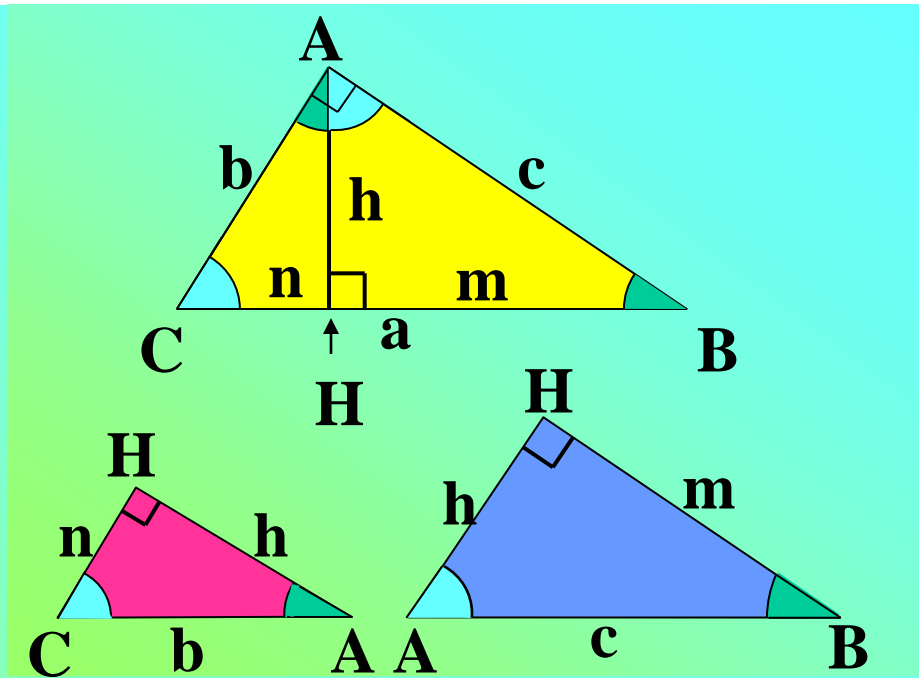
$$b \cdot b = a \cdot n$$

$$b^2 = a \cdot n$$

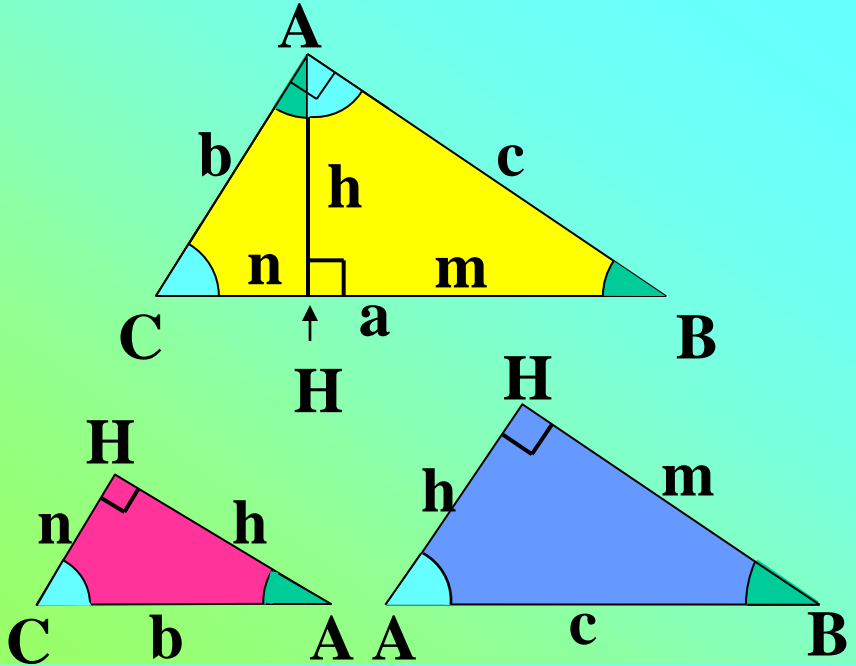


$$b \cdot b = a \cdot n$$

$$b^2 = a \cdot n$$



$$b^2 = a \cdot n$$

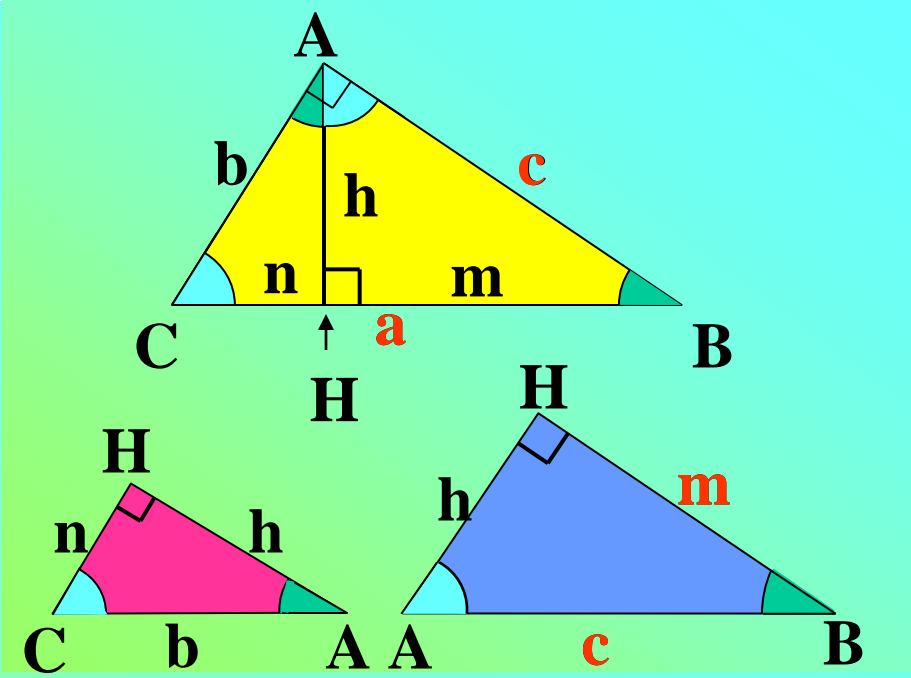


$$b^2 = a \cdot n$$

$$\frac{c}{m} = \frac{a}{c}$$

$$c \cdot c = a \cdot m$$

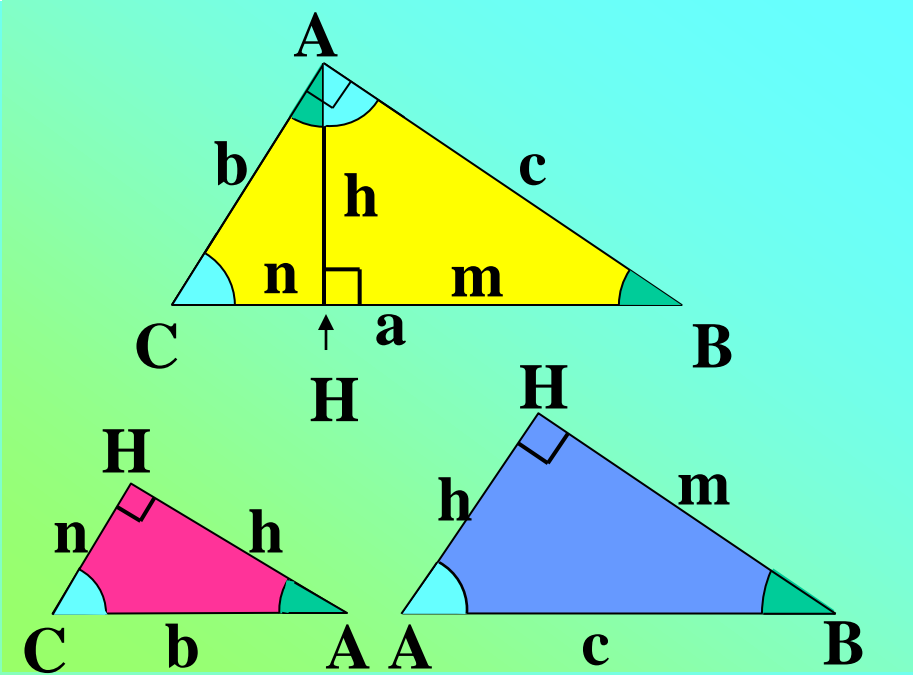
$$c^2 = a \cdot m$$



$$b^2 = a.n$$

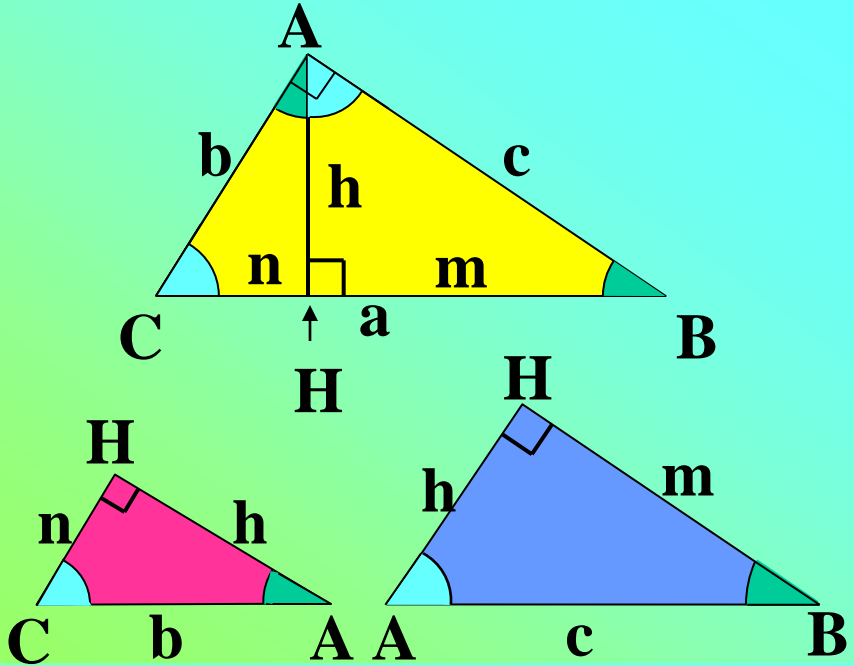
$$c.c = a.m$$

$$c^2 = a.m$$



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$



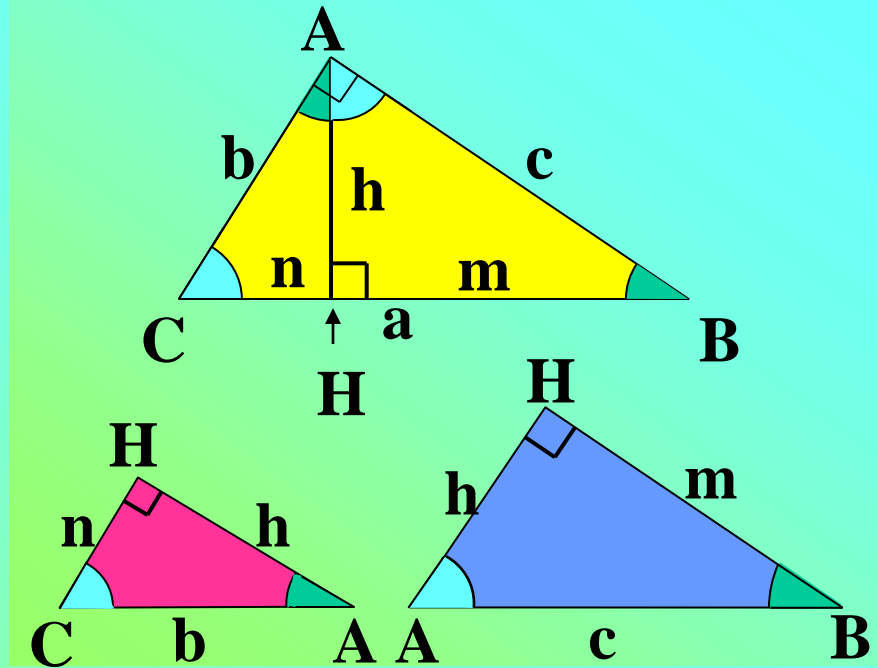
$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

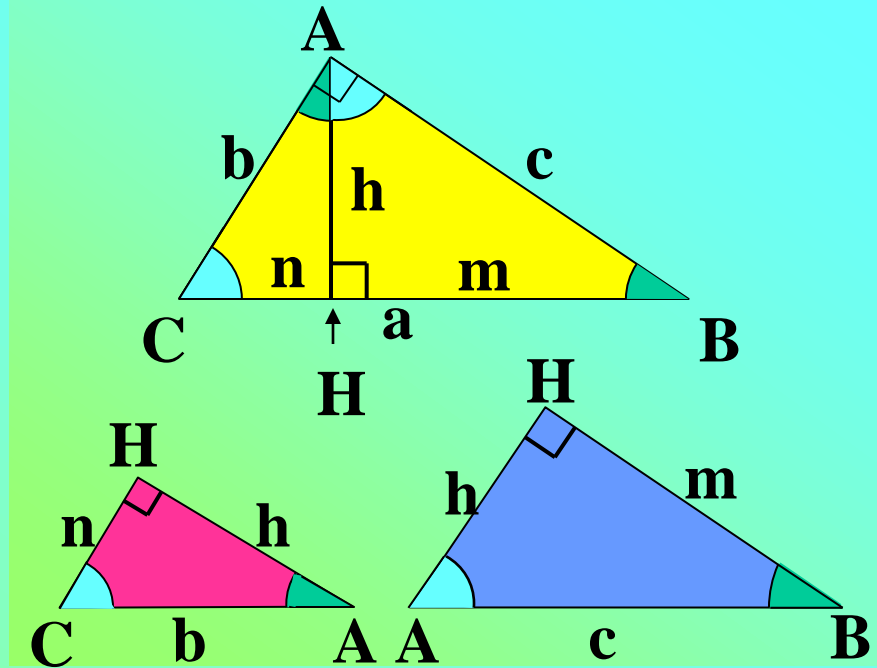
$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

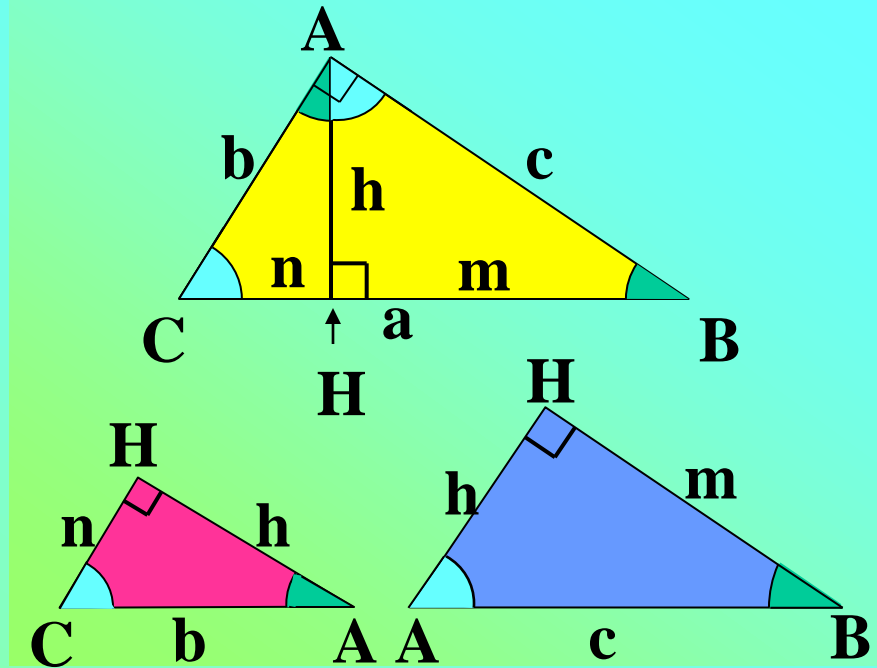
$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

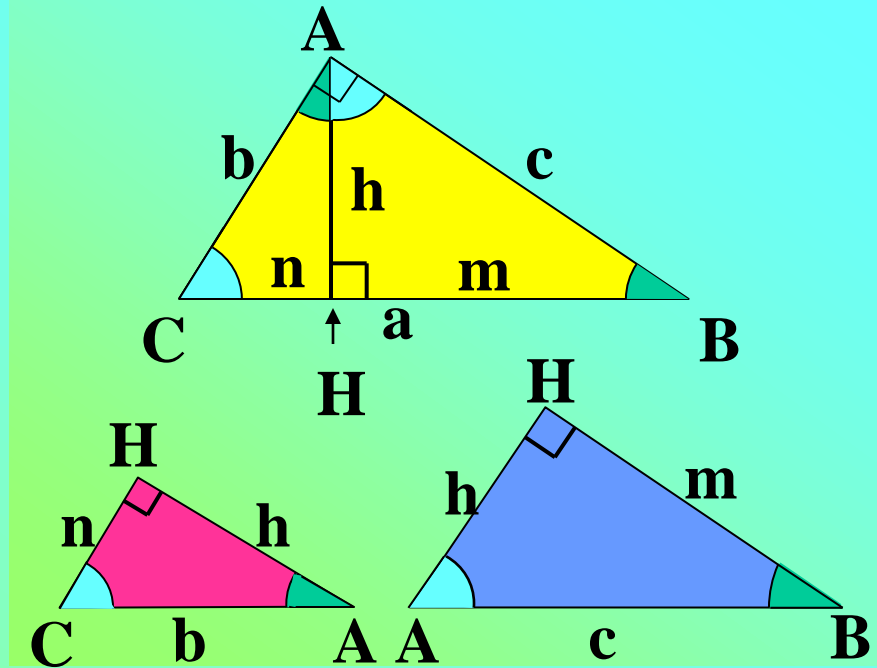
$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

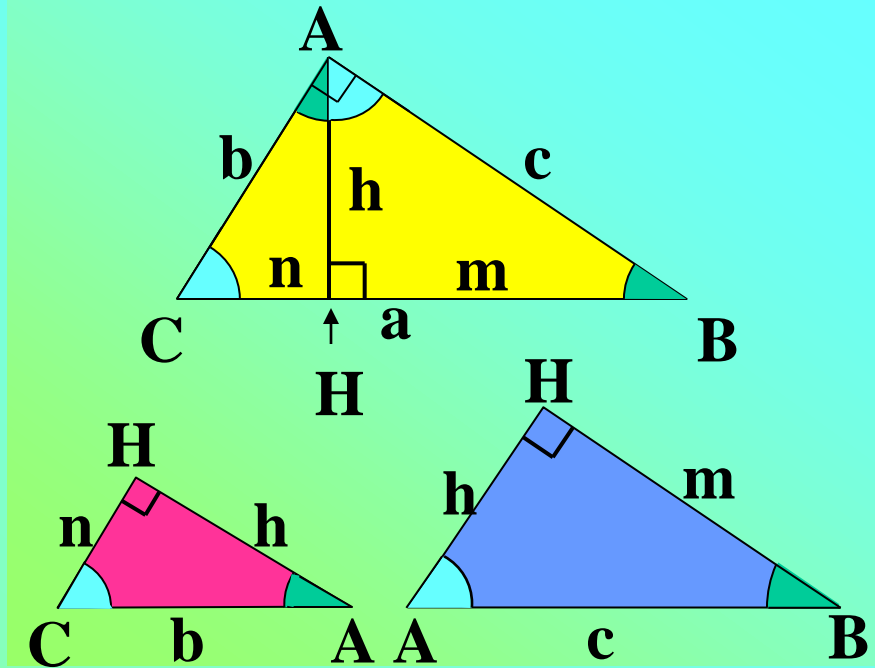
$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

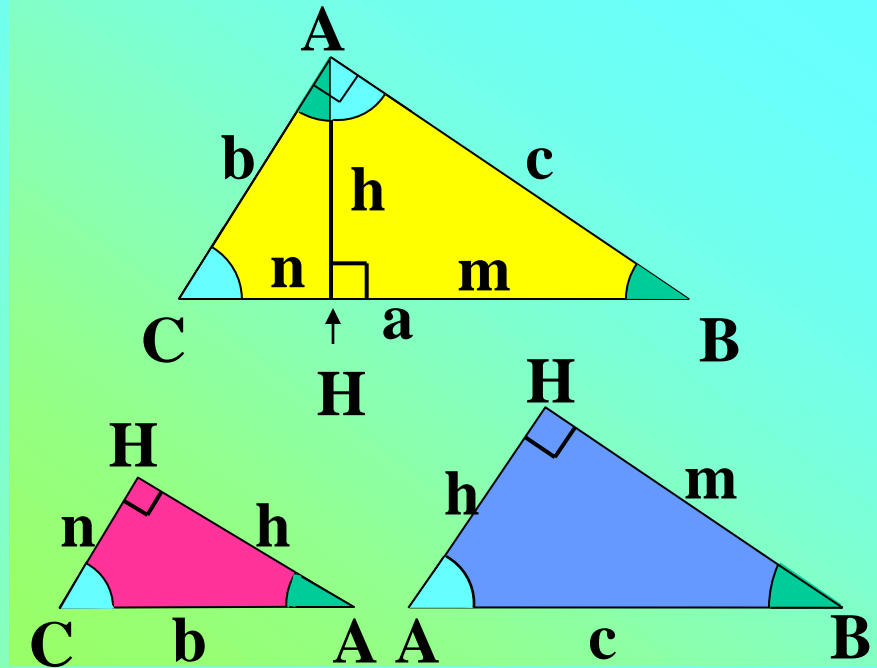
$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

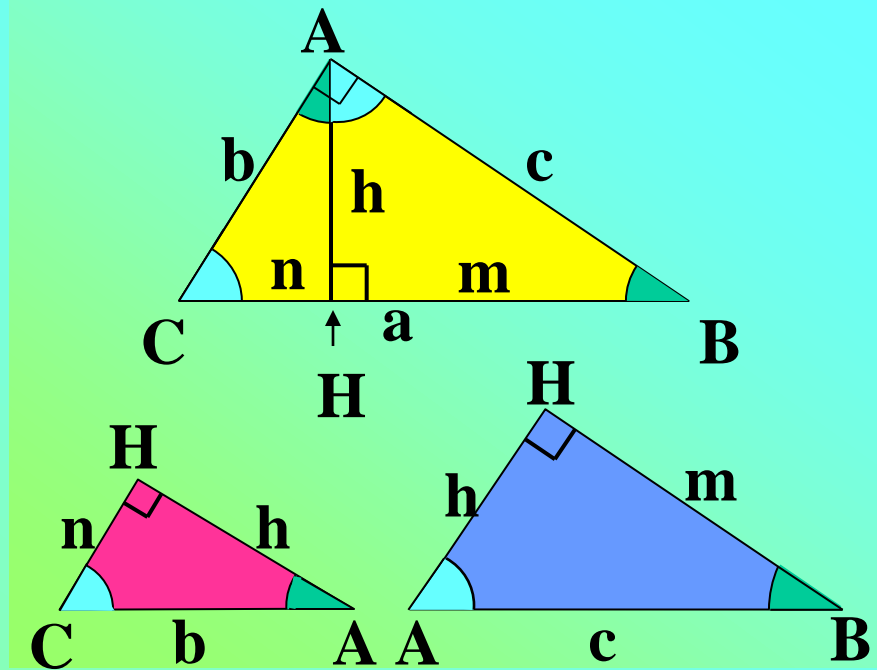
$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

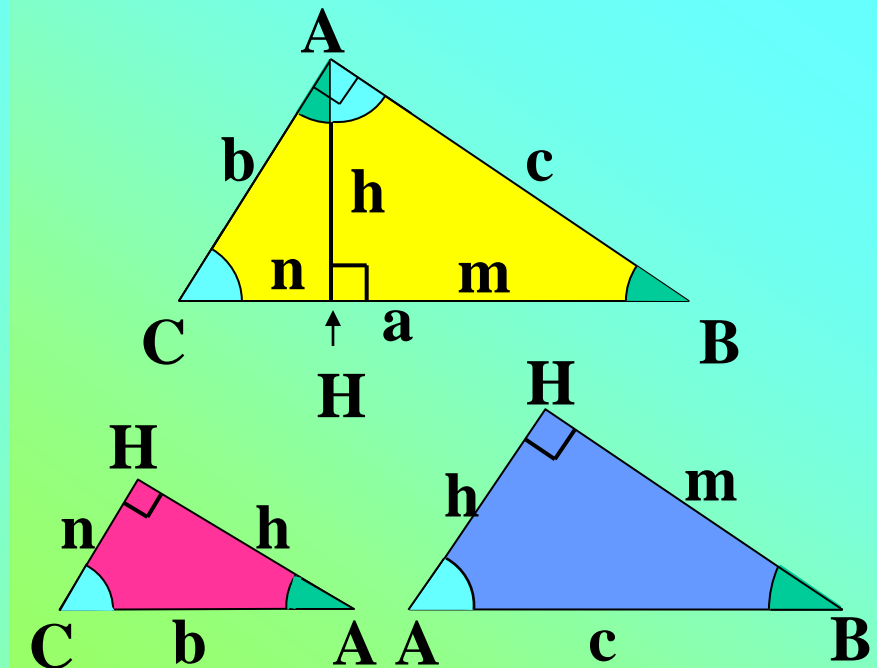
$$b^2 + c^2 = a \cdot n + a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



$$b^2 = a \cdot n$$

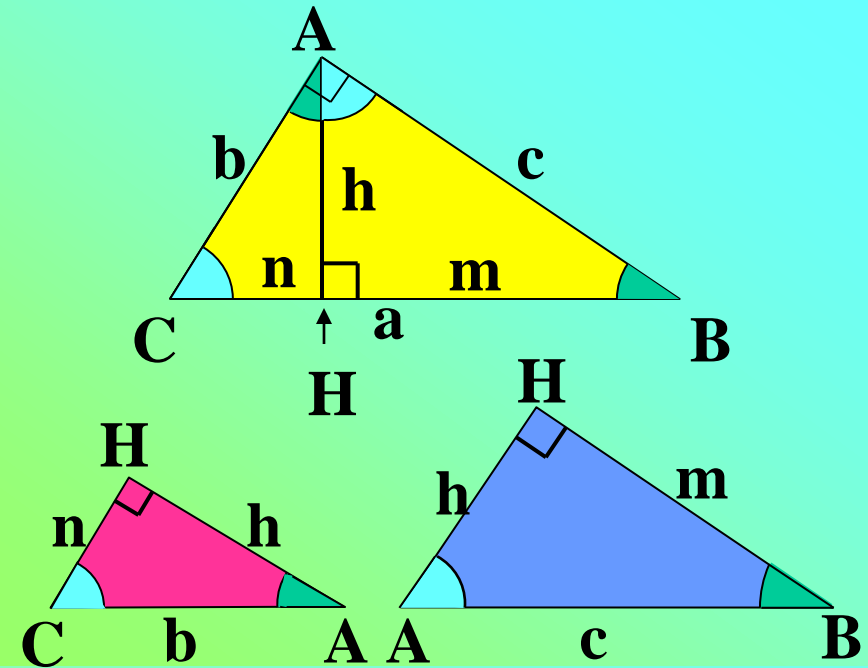
$$c^2 = a \cdot m$$

$$b^2 + c^2 = a \cdot (n + m)$$

$$n + m = a$$

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

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



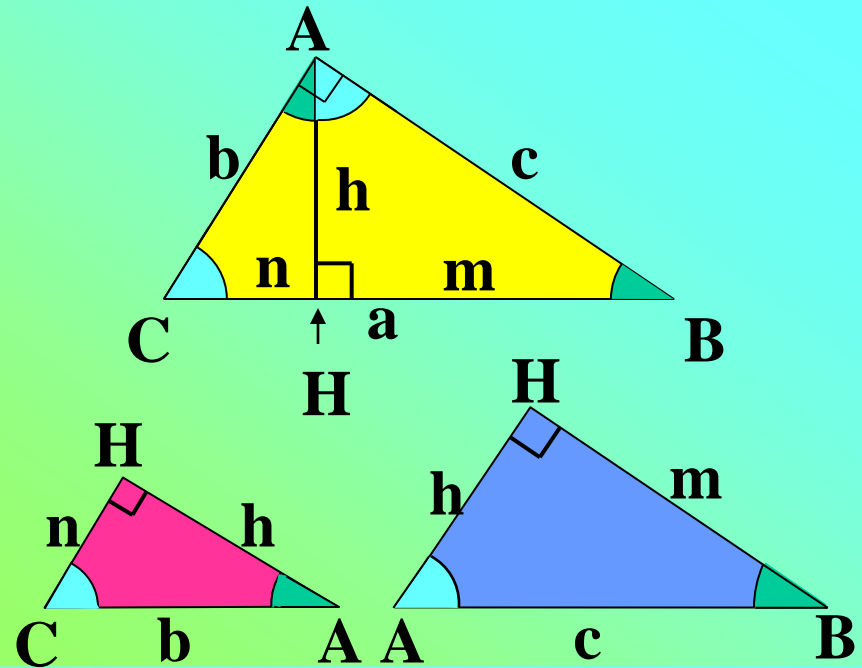
$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

$$n + m = a$$

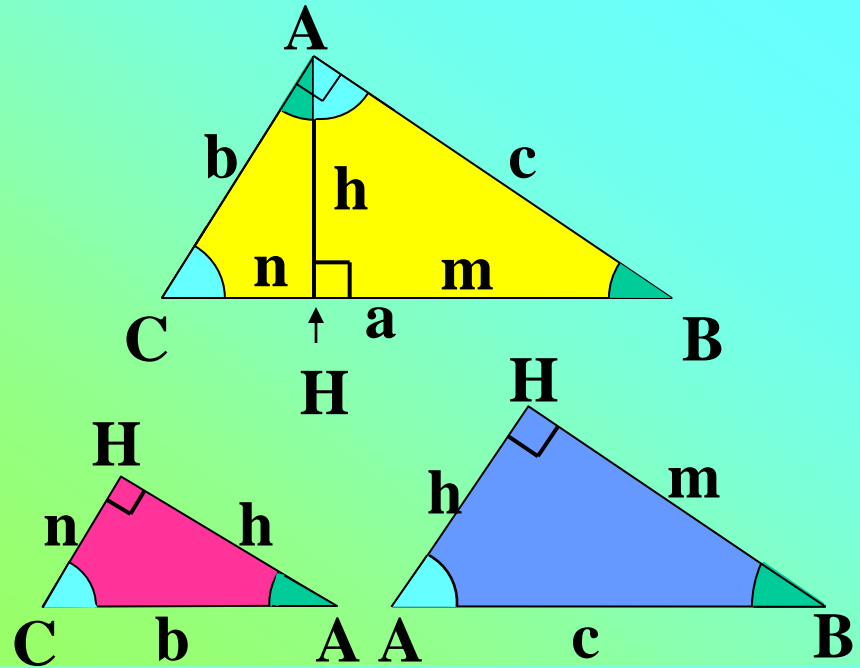
$$b^2 + c^2 = a \cdot a$$

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



$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

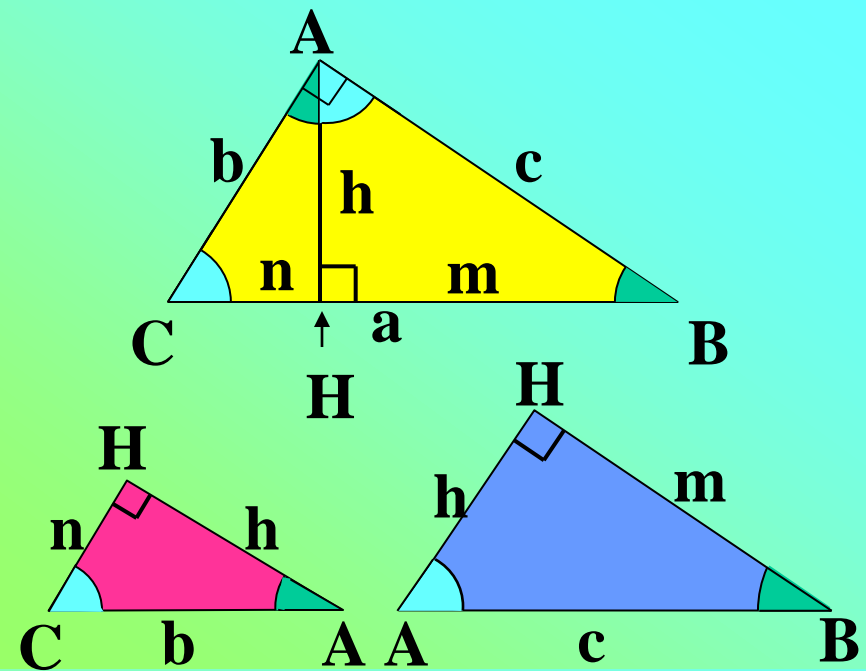


$$b^2 + c^2 = a \cdot a$$

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

$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$



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

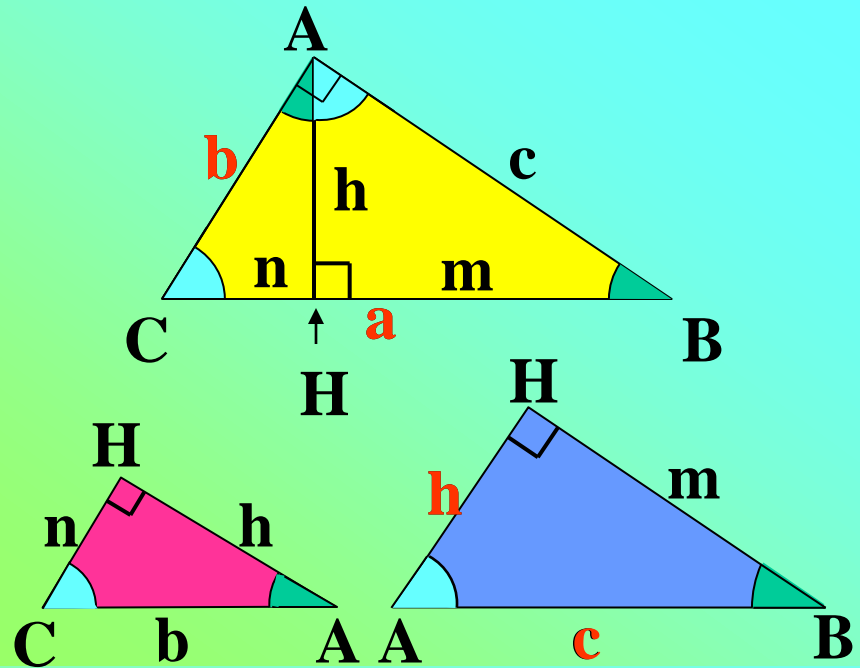
$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

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

$$\frac{b}{h} = \frac{a}{c}$$

$$b \cdot c = a \cdot h$$

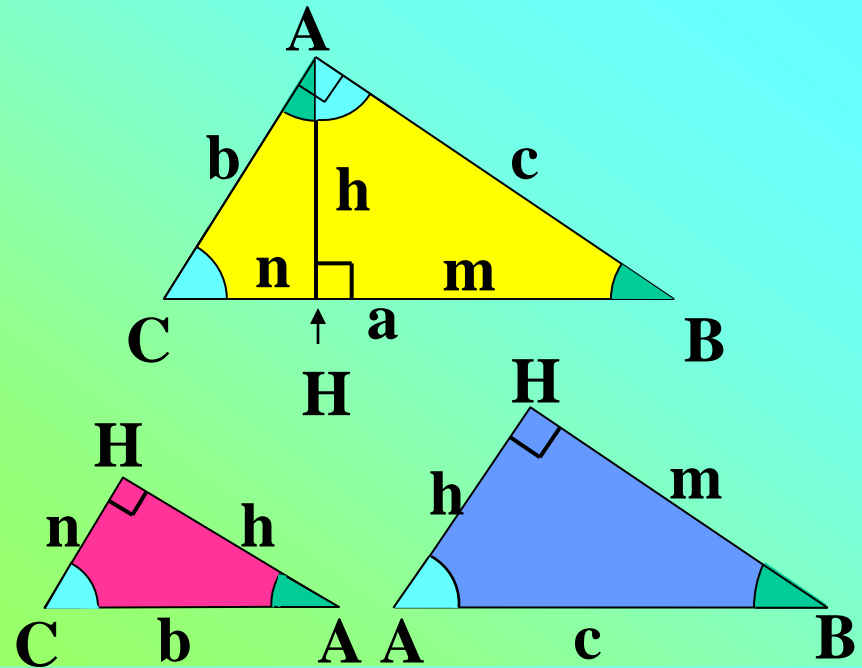


$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

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

$$b \cdot c = a \cdot h$$

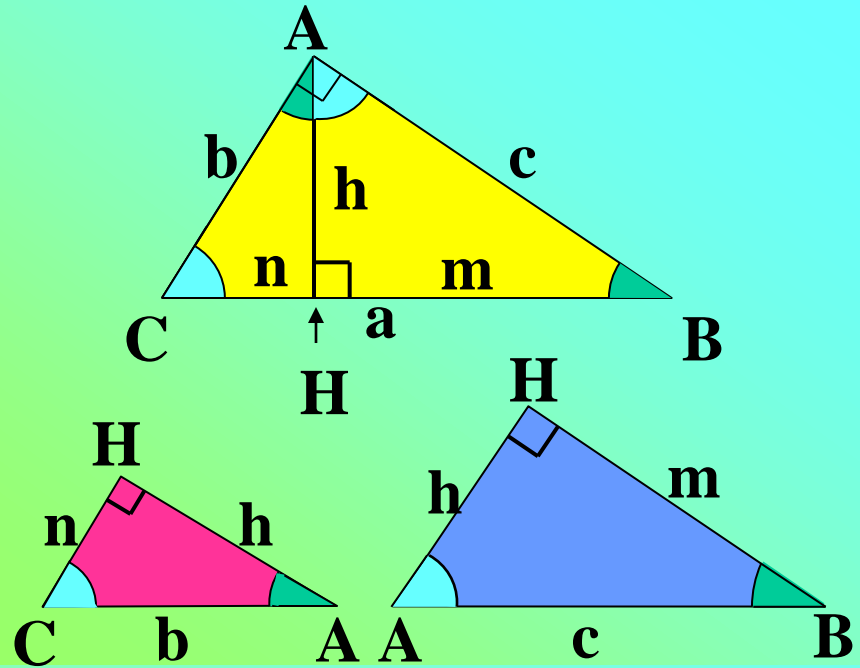


$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

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

$$b \cdot c = a \cdot h$$



$$b^2 = a.n$$

$$c^2 = a.m$$

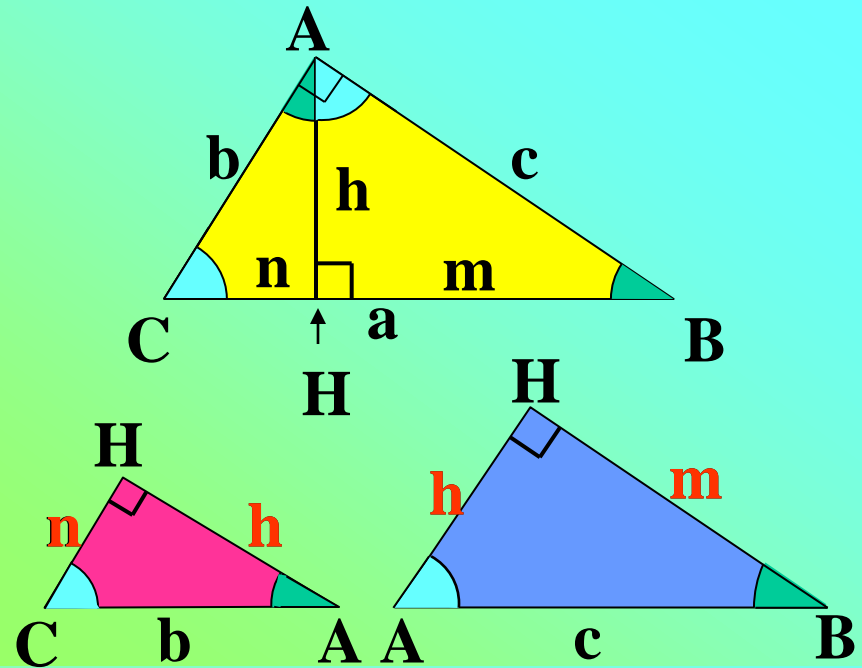
$$a^2 = b^2 + c^2$$

$$b.c = a.h$$

$$\frac{h}{n} = \frac{m}{h}$$

$$h.h = m.n$$

$$h^2 = m.n$$



$$b^2 = a.n$$

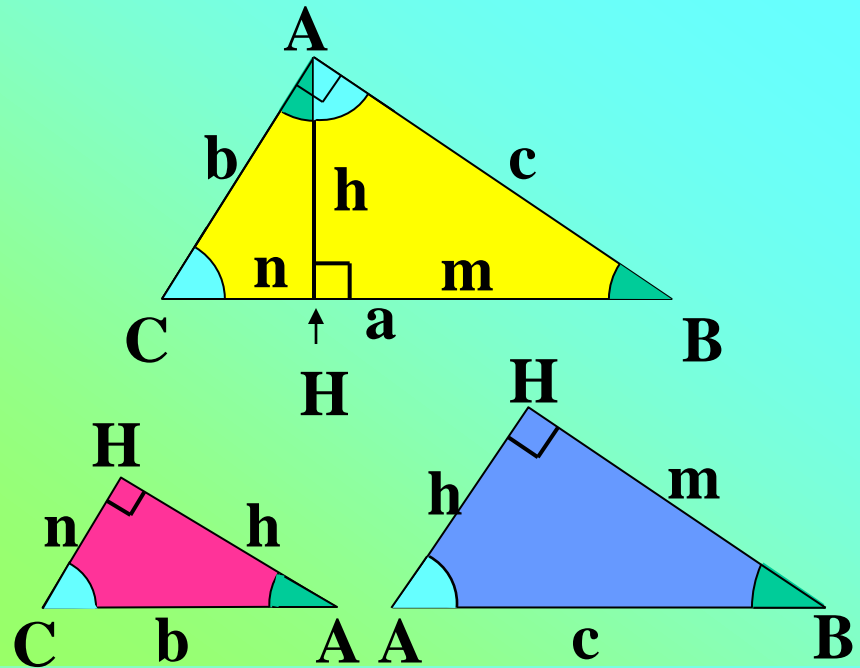
$$c^2 = a.m$$

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

$$b.c = a.h$$

$$h.h = m.n$$

$$h^2 = m.n$$

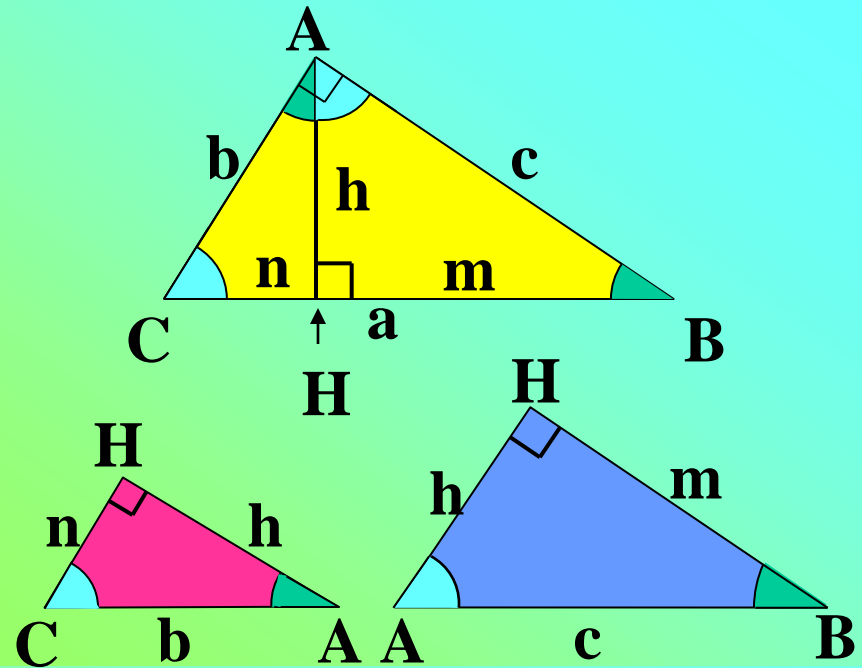


$$b^2 = a.n$$

$$c^2 = a.m$$

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

$$b.c = a.h$$



$$h^2 = m.n$$

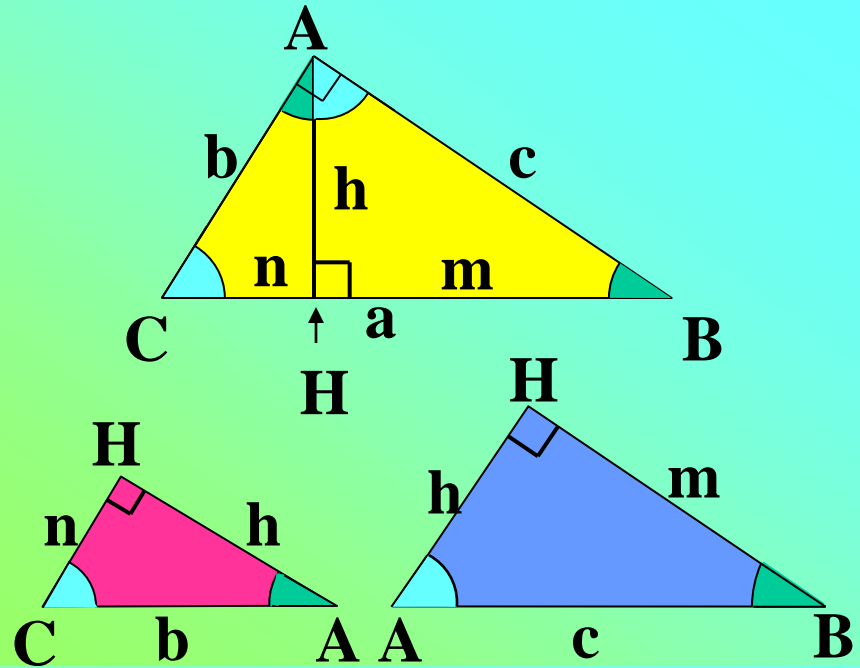
$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

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

$$b \cdot c = a \cdot h$$

$$h^2 = m \cdot n$$



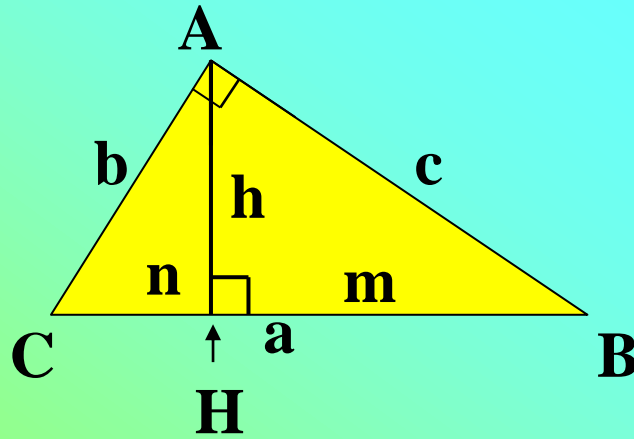
$$b^2 = a.n$$

$$c^2 = a.m$$

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

$$b.c = a.h$$

$$h^2 = m.n$$



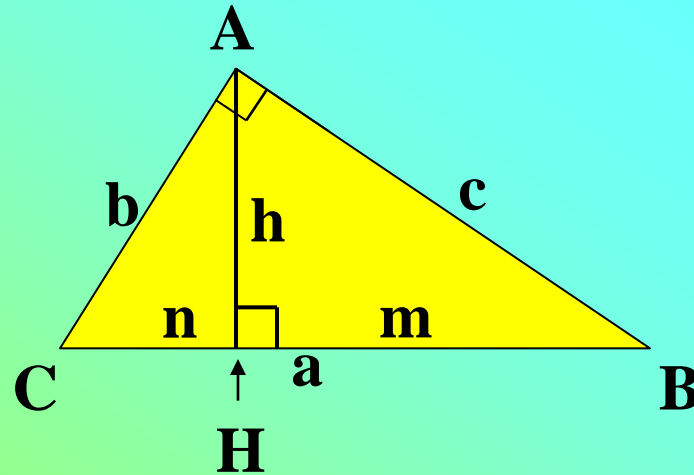
$$b^2 = a.n$$

$$c^2 = a.m$$

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

$$b.c = a.h$$

$$h^2 = m.n$$



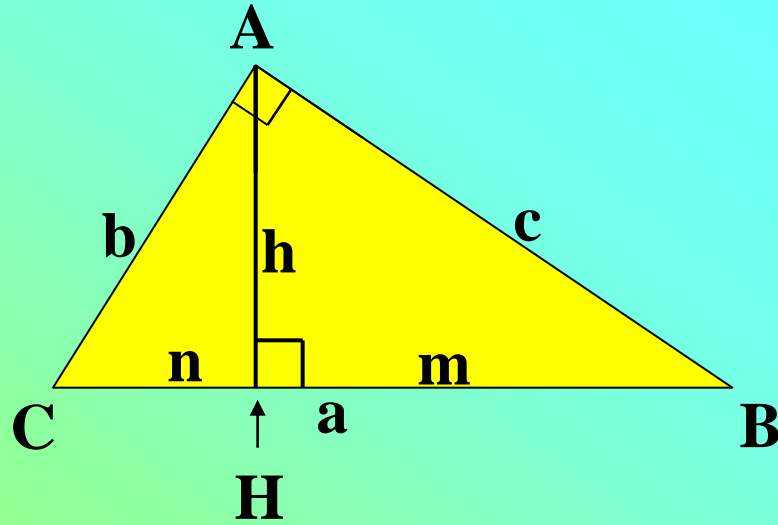
$$b^2 = a \cdot n$$

$$c^2 = a \cdot m$$

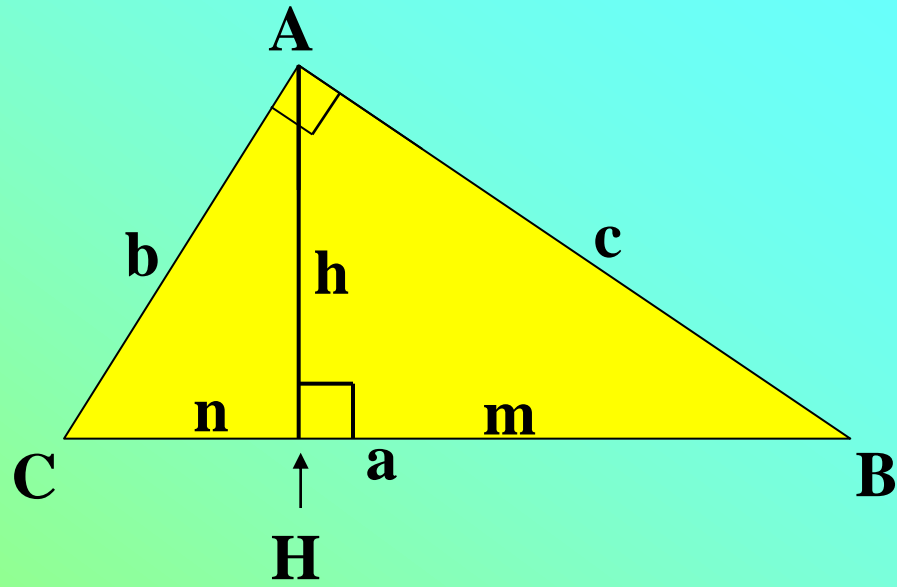
$$a^2 = b^2 + c^2$$

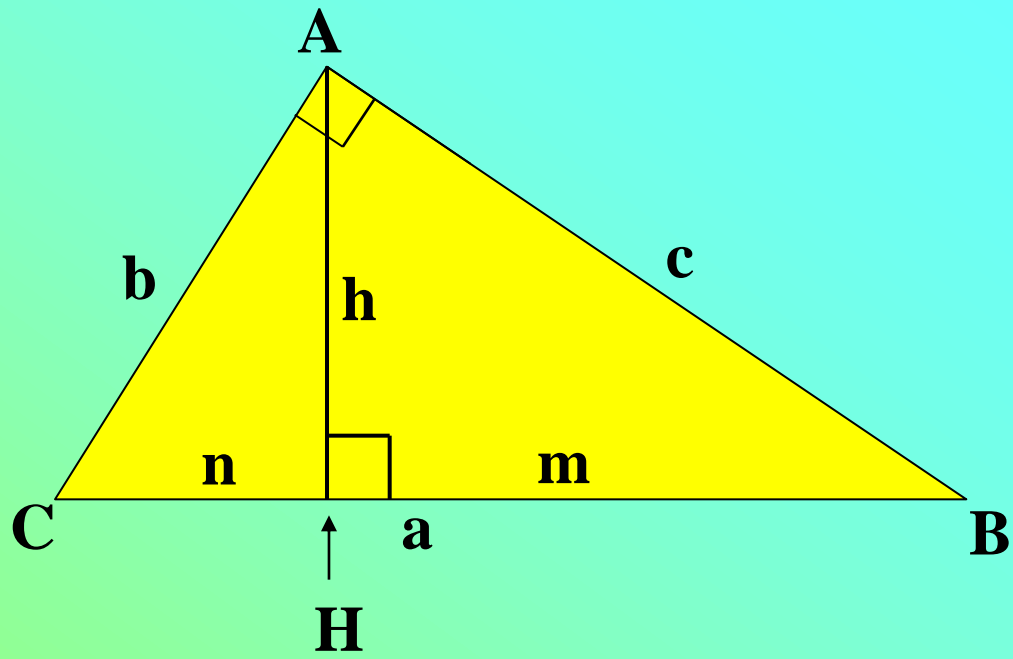
$$b \cdot c = a \cdot h$$

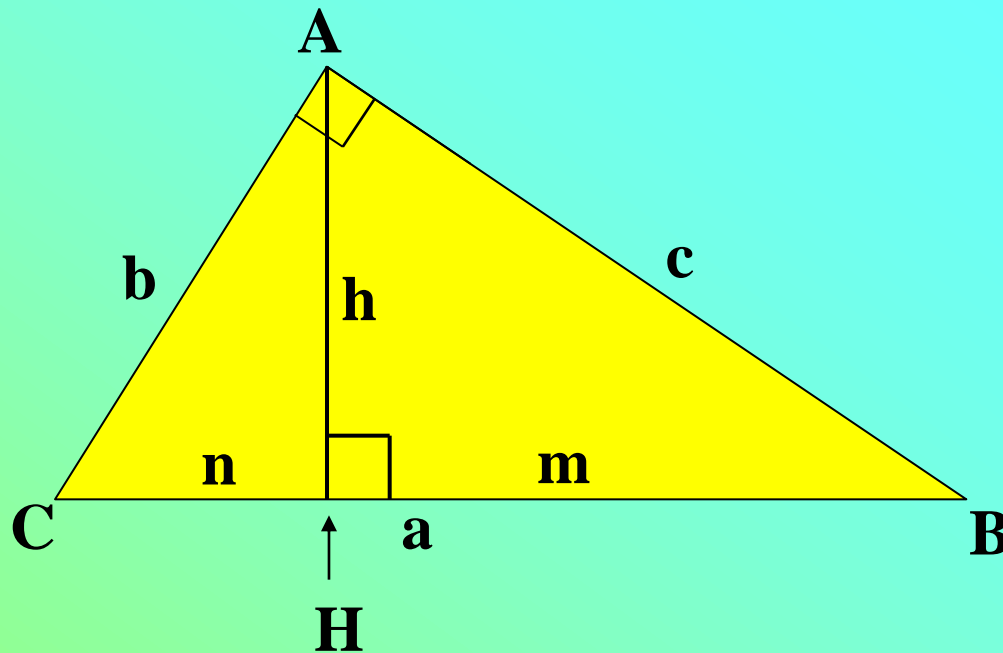
$$h^2 = m \cdot n$$



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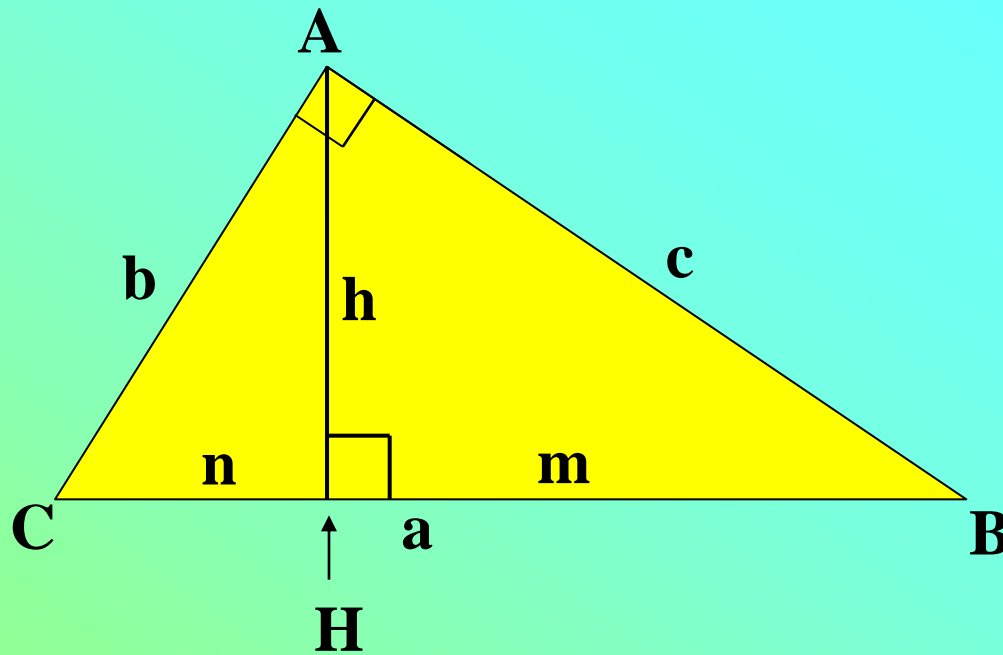




$$b^2 = a.n$$

$$c^2 = a.m$$

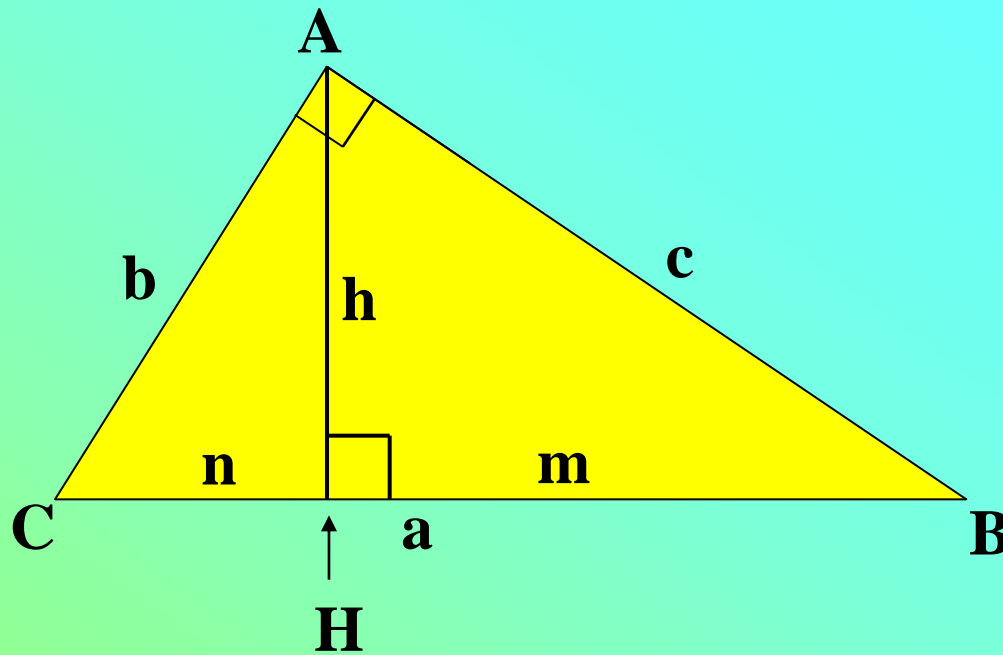
O quadrado de qualquer cateto é igual a hipotenusa multiplicada por sua projeção.



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

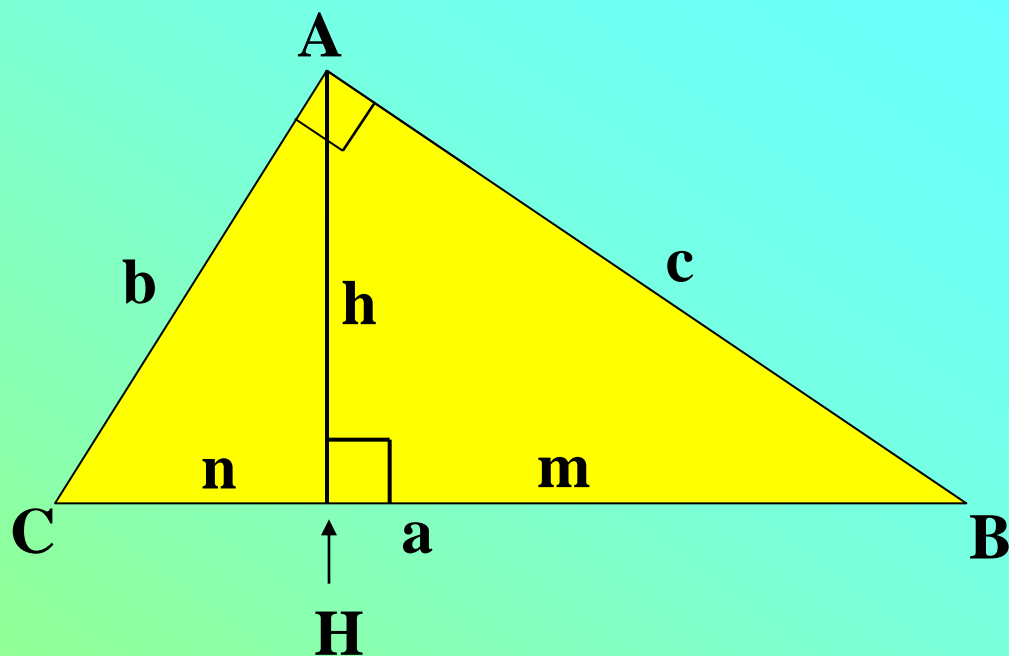
O quadrado da hipotenusa é igual a soma dos quadrados dos catetos.

(Teorema de Pitágoras)



$$b \cdot c = a \cdot h$$

O produto dos catetos é igual a hipotenusa multiplicada pela altura.



$$h^2 = m \cdot n$$

O quadrado da altura é igual ao produto das projeções dos catetos sobre a hipotenusa.