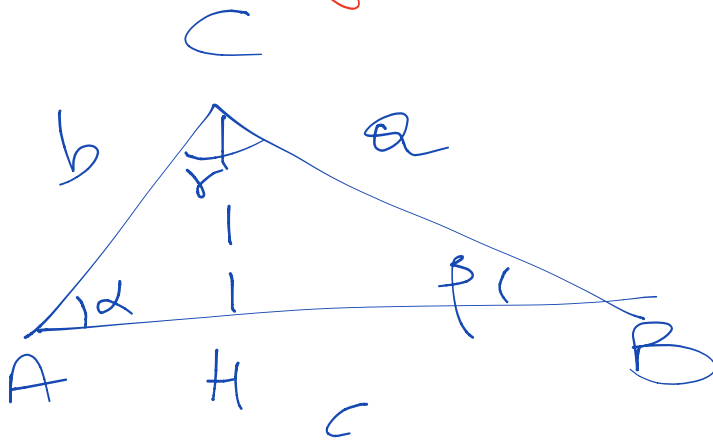


Trigonometria

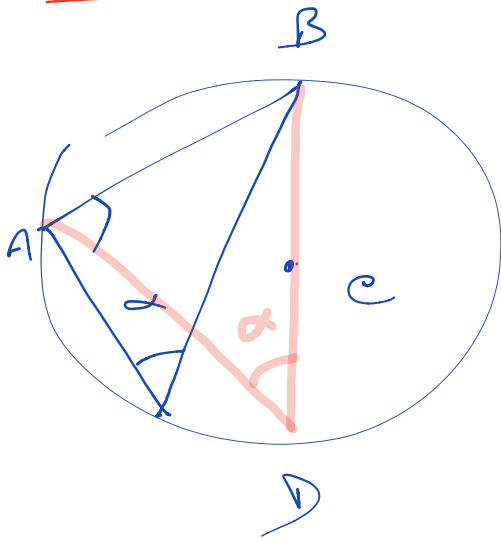


$$Q = \frac{1}{2} \overline{AB} \cdot \overline{CH} = \frac{1}{2} c b \sin \alpha =$$

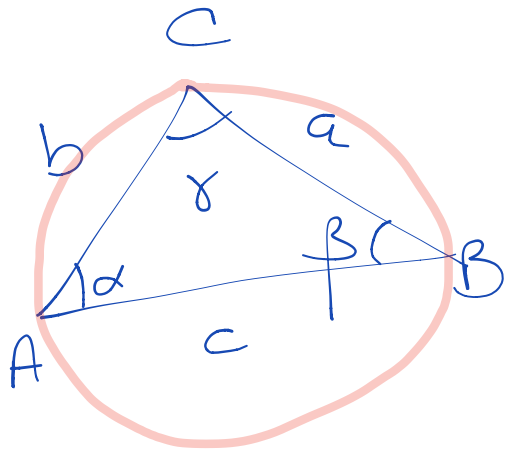
$$= \frac{1}{2} \underline{bc} \underline{\sin \alpha} = \frac{1}{2} a b \sin \gamma = \frac{1}{2} a c \sin \beta$$

l. della corda

$$\overline{AB} = 2r \sin \alpha$$



Teorema dei seni



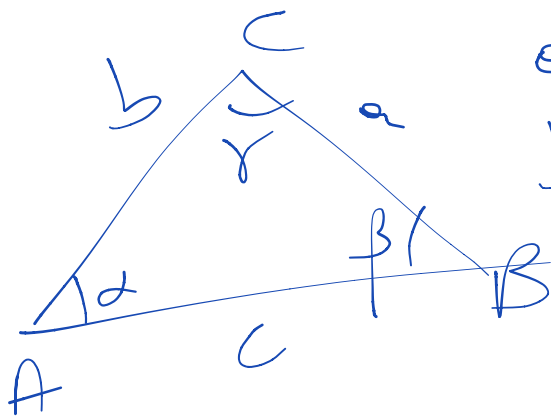
$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$$

$$c = 2r \sin \gamma \Rightarrow 2r = \frac{c}{\sin \gamma}$$

$$b = 2r \sin \beta \Rightarrow 2r = \frac{b}{\sin \beta}$$

$$a = 2r \sin \alpha \Rightarrow 2r = \frac{a}{\sin \alpha}$$

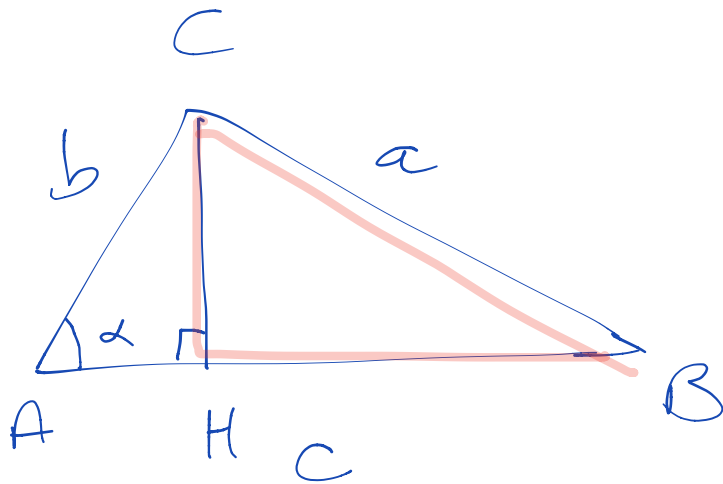
Teorema del coseno (Carnot)



$$a^2 = b^2 + c^2 - 2bc \cos \alpha$$

$$b^2 = a^2 + c^2 - 2ac \cos \beta$$

$$c^2 = a^2 + b^2 - 2ab \cos \gamma$$



$$\overline{AH} = b \cos \alpha \quad \overline{HB} = \overline{AB} - \overline{AH} =$$

$$\overline{CH} = b \sin \alpha \quad = c - b \cos \alpha$$

$$\overline{CB}^2 = \overline{CH}^2 + \overline{HB}^2$$

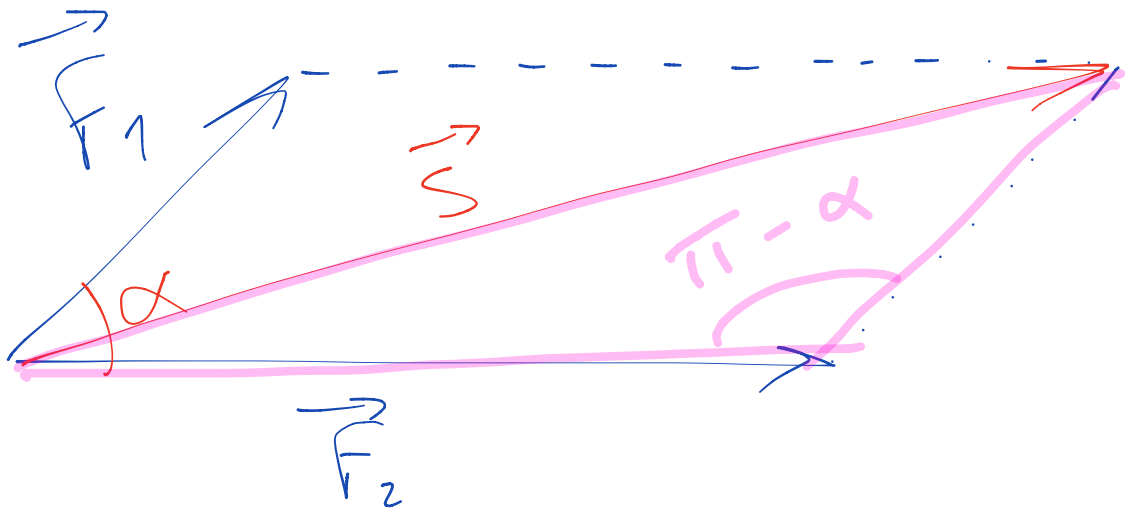
$$a^2 = b^2 \sin^2 \alpha + c^2 + b^2 \cos^2 \alpha - 2bc \cos \alpha =$$

$$= b^2 + c^2 - 2bc \cos \alpha$$

$$\cos \alpha = \frac{-a^2 + b^2 + c^2}{2bc}$$

$$\cos \beta = \frac{-b^2 + a^2 + c^2}{2ac}$$

$$\cos \gamma = \frac{-c^2 + a^2 + b^2}{2ab}$$



$$\begin{aligned} S^2 &= F_1^2 + F_2^2 - 2F_1F_2 \cos(\pi - \alpha) = \\ &= F_1^2 + F_2^2 + 2F_1F_2 \cos \alpha \end{aligned}$$

$$S = \sqrt{F_1^2 + F_2^2 + 2F_1F_2 \cos \alpha}$$