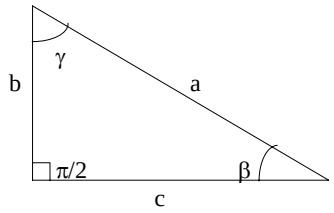
Tabelle riassuntive delle FORMULE TRIGONOMETRICHE

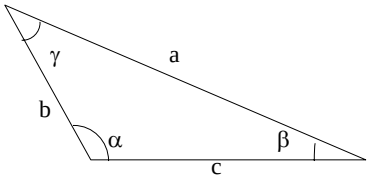
- Triangolo rettangolo

$$b = a \cdot sin(\beta) = a \cdot \cos(\gamma) \qquad c = a \cdot sin(\gamma) = a \cdot \cos(\beta)$$
$$b = c \cdot tg(\beta) = c \cdot ctg(\gamma) \qquad c = b \cdot tg(\gamma) = b \cdot ctg(\beta)$$



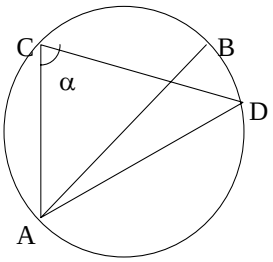
- Triangolo qualunque

$$\text{Area} = \frac{1}{2} a \cdot b \cdot sin(\gamma) = \frac{1}{2} b \cdot c \cdot sin(\alpha) = \frac{1}{2} a \cdot c \cdot sin(\beta)$$
$$\text{Area} = \sqrt{p(p-a)(p-b)(p-c)} \quad \text{con} \quad p = \frac{a+b+c}{2}$$



Teorema della corda

$$\overline{AD} = 2r \cdot sin(\alpha) \qquad \text{con} \qquad \overline{AB} = 2r$$

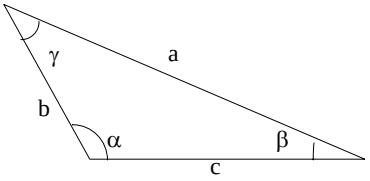


Teorema dei seni

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

Teorema delle proiezioni

$$a = b \cdot \cos(\gamma) + c \cdot \cos(\beta)$$



Teorema del coseno o di Carnot

$$a^2 = b^2 + c^2 - 2bc \cdot \cos(\alpha)$$
$$b^2 = a^2 + c^2 - 2ac \cdot \cos(\beta)$$
$$c^2 = a^2 + b^2 - 2ab \cdot \cos(\gamma)$$

Formule di Briggs

$$\sin\left(\frac{\alpha}{2}\right)=\sqrt{\frac{(p-b)(p-c)}{bc}} \qquad \sin\left(\frac{\beta}{2}\right)=\sqrt{\frac{(p-a)(p-c)}{ac}} \qquad \sin\left(\frac{\gamma}{2}\right)=\sqrt{\frac{(p-a)(p-b)}{ab}}$$

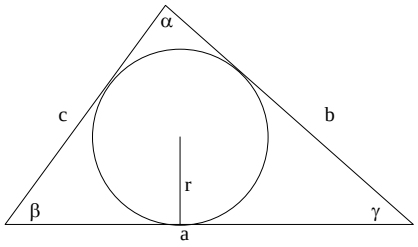
$$\cos\left(\frac{\alpha}{2}\right)=\sqrt{\frac{p(p-a)}{bc}} \qquad \cos\left(\frac{\beta}{2}\right)=\sqrt{\frac{p(p-b)}{ac}} \qquad \cos\left(\frac{\gamma}{2}\right)=\sqrt{\frac{p(p-c)}{ab}}$$

$$tg\left(\frac{\alpha}{2}\right)=\sqrt{\frac{(p-b)(p-c)}{p(p-a)}} \qquad tg\left(\frac{\beta}{2}\right)=\sqrt{\frac{(p-a)(p-c)}{p(p-b)}} \qquad tg\left(\frac{\gamma}{2}\right)=\sqrt{\frac{(p-a)(p-b)}{p(p-c)}}$$

$$ctg\left(\frac{\alpha}{2}\right)=\sqrt{\frac{p(p-a)}{(p-b)(p-c)}} \qquad ctg\left(\frac{\beta}{2}\right)=\sqrt{\frac{p(p-b)}{(p-a)(p-c)}} \qquad ctg\left(\frac{\gamma}{2}\right)=\sqrt{\frac{p(p-c)}{(p-a)(p-b)}}$$

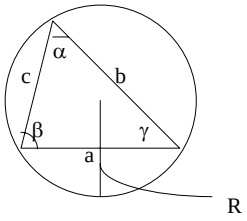
Raggio del cerchio inscritto

$$r=\frac{S}{p}=(p-a)\cdot tg\left(\frac{\alpha}{2}\right)=(p-b)\cdot tg\left(\frac{\beta}{2}\right)=(p-c)\cdot tg\left(\frac{\gamma}{2}\right)$$



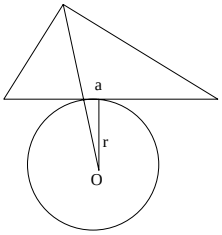
Raggio del cerchio circoscritto

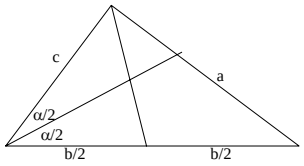
$$R=\frac{a}{2sin(\alpha)}=\frac{b}{2sin(\beta)}=\frac{c}{2sin(\gamma)}=\frac{abc}{4S}$$



Raggio della circonferenza exinscritta tangente al lato di lunghezza a

$$r=\frac{S}{p-a}$$





Mediane e bisettrice di un triangolo

$$m_a=\frac{1}{2}\sqrt{2b^2+2c^2-a^2} \qquad m_b=\frac{1}{2}\sqrt{2a^2+2c^2-b^2} \qquad m_c=\frac{1}{2}\sqrt{2a^2+2b^2-c^2}$$

$$b_\alpha=\frac{2bc\cdot\cos\left(\frac{\alpha}{2}\right)}{b+c} \qquad b_\beta=\frac{2ac\cdot\cos\left(\frac{\beta}{2}\right)}{a+c} \qquad b_\gamma=\frac{2ab\cdot\cos\left(\frac{\gamma}{2}\right)}{a+b}$$