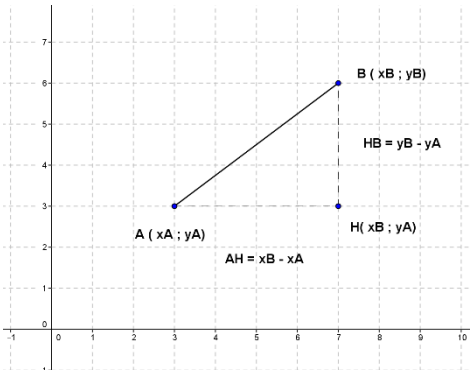
Formulario III Media C



1) Punti nel piano.

a) **La distanza tra due punti A(x_A; y_A) e B (x_B;y_B) ;**

$$|AB| = \sqrt{(x_B - x_A)^2 + (y_B - y_A)^2}$$

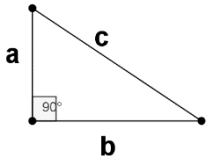
b) Il punto medio di un segmento.

c) La pendenza d'un segmento.

2) Il triangolo rettangolo.

a) La misura dell'ipotenusa **c**, dati i cateti **a** e **b**.

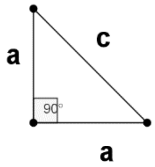
$$c = \sqrt{a^2 + b^2}$$



b) La misura dei cateti.

$$a = \sqrt{c^2 - b^2} \quad ; b = \sqrt{c^2 - a^2}$$

3) Il triangolo rettangolo isoscele di lato a e ipotenusa c.



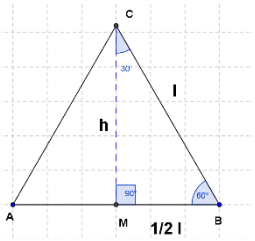
a) Dati i cateti.

$$c = \sqrt{a^2 + a^2} \quad ; c = \sqrt{2a^2} \quad ; \quad c = a\sqrt{2}$$

b) Data l'ipotenusa **c**, calcolare il cateto **a**.

$$a = \frac{c\sqrt{2}}{2}$$

4) Il triangolo equilatero.



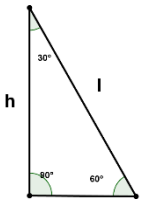
a) L'altezza data la misura del lato.

$$h = \frac{lato}{2}\sqrt{3} \quad \textbf{inversa: } lato = \frac{2\,h\sqrt{3}}{3}$$

b) L'area data la misura del lato.

$$A = \frac{lato^2\sqrt{3}}{4} \quad \textbf{inversa: } lato = \sqrt{\frac{4A\sqrt{3}}{3}}$$

5) Il triangolo rettangolo 30°- 60°- 90°.



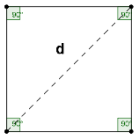
a) L'altezza dato il lato.

$$h = \frac{lato}{2}\sqrt{3} \quad \textbf{inversa: } lato = \frac{2\,h\sqrt{3}}{3}$$

b) L'area data la misura del lato.

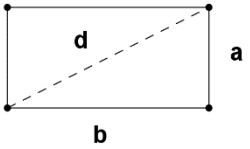
$$A = \frac{lato}{2} \cdot \frac{lato}{2}\sqrt{3} \cdot \frac{1}{2}; \quad A = \frac{lato^2\sqrt{3}}{8}$$

6) Il quadrato.



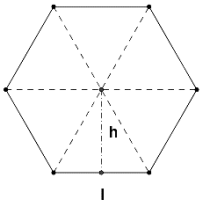
$$d = lato\sqrt{2} \quad ; \text{ inversa } lato = \frac{d\sqrt{2}}{2}$$

7) Il rettangolo



$$d = \sqrt{a^2 + b^2}$$

8) Esagono regolare, dato il lato.

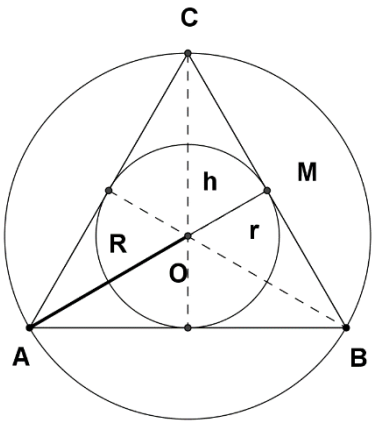


$$A = \frac{lato^2\sqrt{3}}{4} \cdot 6 \; ; \quad A = \frac{3\sqrt{3}\;lato^2}{2}$$

formula inversa $lato = \frac{1}{3}\sqrt{2A\sqrt{3}}$

9) Rapporti tra raggi e altezza in un triangolo equilatero inscritto / circoscritto ad una circonferenza.

Dati : **R** = raggio circonferenza circoscritta al triangolo equilatero;
r = raggio circonferenza inscritta al triangolo equilatero;
h = altezza triangolo equilatero.



a) **Rapporti geometrici:**

h = 3r formula inversa $r = \frac{1}{3}\,h$

R = 2r formula inversa $r = \frac{1}{2}\,R$

R = $\frac{2}{3}$ h formula inversa $h = \frac{3}{2}\,R$

b) **Relazioni algebriche sostituendo** $\mathbf{h = \frac{lato}{2}\sqrt{3}}$

Da $r = \frac{1}{3}\,h$ otteniamo : $r = \frac{1}{3}\cdot\frac{lato}{2}\sqrt{3}$; $\mathbf{r = \frac{lato}{6}\sqrt{3}}$

formula inversa : $\mathbf{l = 2\sqrt{3}\,r}$

Da R = $\frac{2}{3}$ h otteniamo : $R = \frac{2}{3}\cdot\frac{lato}{2}\sqrt{3}$; $R = \frac{lato}{3}\sqrt{3}$

formula inversa : $\mathbf{l = R\sqrt{3}}$

c) **Circonferenza inscritta al triangolo equilatero:**

C = 2rπ sostituendo $\mathbf{r = \frac{lato}{6}\sqrt{3}}$ ottengo $C = \frac{lato\sqrt{3}}{3}\pi$

d) **Circonferenza circoscritta al triangolo equilatero:**

C = 2rπ sostituendo $R = \frac{lato}{3}\sqrt{3}$ ottengo $C = \frac{2\,lato\,\sqrt{3}}{3}\pi$ … chiaramente ! ☺

Conclusione? ……

e) **Area cerchio inscritto al triangolo equilatero.**

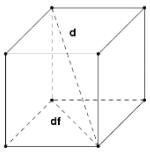
A = $r^2\pi$ sostituendo $\mathbf{r = \frac{lato}{6}\sqrt{3}}$ ottengo $A = \frac{lato^2}{12}\pi$

f) **Area cerchio circoscritto al triangolo equilatero.**

A = $r^2\pi$ sostituendo $R = \frac{lato}{3}\sqrt{3}$ ottengo $A = \frac{lato^2}{3}\pi$ …. Interessante ! ☺

Conclusione? ……

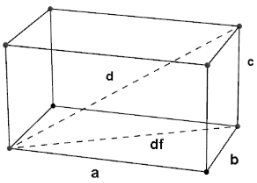
10) Il cubo.



a) Diagonale di base : $\mathbf{d_f = s\sqrt{2}}$; inversa $\mathbf{s = \frac{df\sqrt{2}}{2}}$

b) Diagonale del cubo: $\mathbf{d = s\sqrt{3}}$; inversa $\mathbf{s = \frac{d\sqrt{3}}{3}}$

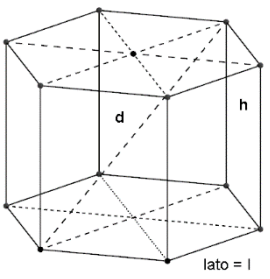
11) **Il parallelepipedo rettangolo.**



a) Diagonale di base : $\mathbf{d_f = \sqrt{a^2 + b^2}}$

b) Diagonale del parallelepipedo rettangolo: $\mathbf{d = \sqrt{a^2 + b^2 + c^2}}$

12) Il prisma retto a base esagonale regolare di lato l e altezza h.



a) Area di base: $A_b = \frac{lato^2\sqrt{3}}{4}\cdot 6$; $A = \frac{3\sqrt{3}\,lato^2}{2}$

a) Area laterale : A_l = 6lato.h

b) Area totale: At = 6lato h + $\frac{3\sqrt{3}\,lato^2}{2}\cdot 2$; At= 6lato h + $3\sqrt{3}\,lato^2$

c) Volume: V = $\frac{3\sqrt{3}\,lato^2}{2}\cdot h$

d) d = $\sqrt{(2\cdot lato)^2 + h^2}$