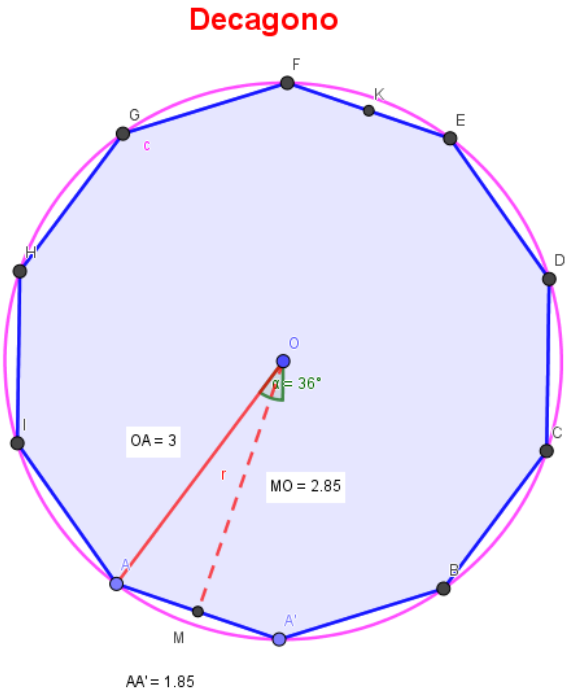
Correzione Blitz nr4 del 7 dicembre 2022

Calcolo del lato del poligono regolare dato il raggio r della circonferenza circoscritta.

Fila A

Dati r = 3 (cm) ; $f_{10} = 1{,}5388$, calcola la misura del lato del poligono e l'apotema, l'area.



Soluzione:

$$r^2 = \left(\frac{\ell}{2}\right)^2 + (\ell \cdot f_{10})^2$$

Sostituendo ottengo:

$$3^2 = \left(\frac{\ell}{2}\right)^2 + (\ell \cdot 1{,}5388)^2$$

$$9 = \frac{\ell^2}{4} + \ell^2 \cdot 1{,}5388^2$$

$$9 = \frac{\ell^2 + 4 \cdot \ell^2 \cdot 1{,}5388^2}{4}$$

$$\frac{36}{4} = \frac{\ell^2(1 + 4 \cdot 1{,}5388^2)}{4}$$

$$36 = \ell^2(1 + 4 \cdot 1{,}5388^2)$$

$$\frac{36}{(1 + 4 \cdot 1{,}5388^2)} = \ell^2$$

$$\ell = \sqrt{\frac{36}{(1 + 4 \cdot 1{,}5388^2)}}$$

$$\ell \cong 1{,}85 \text{ (cm)}$$

da cui apotema $|OM| = \ell \cdot f_{10} = 1{,}85 \cdot 1{,}5388 \cong 2{,}85\ (cm)$

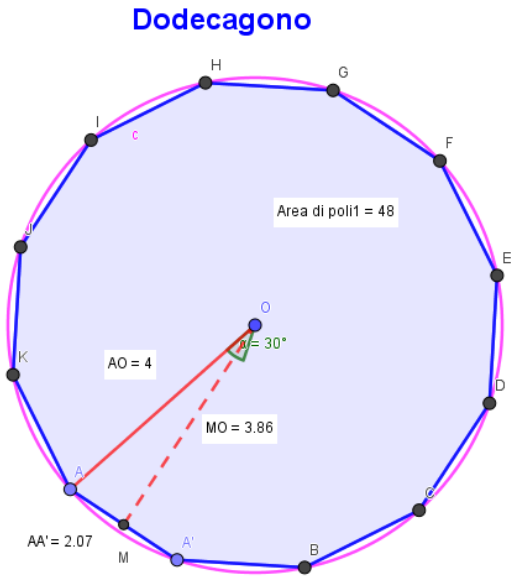
Area: $\frac{Perimetro\ x\ apotema}{2} = \frac{1{,}85 \cdot 10 \cdot 2{,}85}{2} \cong 26{,}36\ (cm^2)$

$S_n = (n-2) \cdot 180° =$ $\qquad D_n = \frac{(n-3) \cdot n}{2}$

$(10-2) \cdot 180° = 140°$ $\qquad ; D_{10} = \frac{(10-3) \cdot 10}{2} = 35$ (diagonali)

Fila B

Dati r = 4 (cm) ; $f_{10} = 1{,}866$, calcola la misura del lato del poligono e l'apotema, l'area.



Soluzione

$$r^2 = \left(\frac{\ell}{2}\right)^2 + (\ell \cdot f_{10})^2$$

Sostituendo ottengo:

$$4^2 = \left(\frac{\ell}{2}\right)^2 + (\ell \cdot 1{,}866)^2$$

$$16 = \frac{\ell^2}{4} + \ell^2 \cdot 1{,}866^2$$

$$16 = \frac{\ell^2 + 4 \cdot \ell^2 \cdot 1{,}866}{4}$$

$$\frac{64}{4} = \frac{\ell^2(1 + 4 \cdot 1{,}866^2)}{4}$$

$$64 = \ell^2(1 + 4 \cdot 1{,}866^2)$$

$$\frac{64}{(1 + 4 \cdot 1{,}866^2)} = \ell^2$$

$$\ell = \sqrt{\frac{64}{(1 + 4 \cdot 1{,}866^2)}}$$

$$\ell \cong 2{,}07 \text{ (cm)}$$

da cui apotema $|OM| = \ell \cdot f_{10} = 2{,}07 \cdot 1{,}866 \cong 3{,}86$ (cm)

Area: $\frac{Perimetro\ x\ apotema}{2} = \frac{2{,}07 \cdot 12 \cdot 3{,}86}{2} \cong 47{,}98$ (cm^2)

$S_n = (n-2) \cdot 180° =$ $(12-2) \cdot 180° = 1'800°$

$D_n = \frac{(n-3) \cdot n}{2}$; $D_{10} = \frac{(12-3) \cdot 12}{2} = 54$ (diagonali)