GEOMETRIA DIETRO LE QUINTE

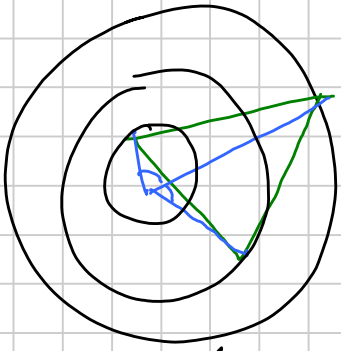
Titolo nota 17/10/2017

Tentazione: Dare più contenuti

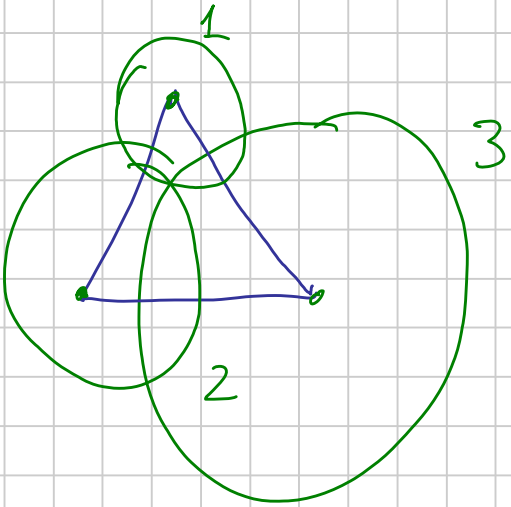
Es: Tre cerchi (circonferenze) di raggi 1, 2, 3 concentriche

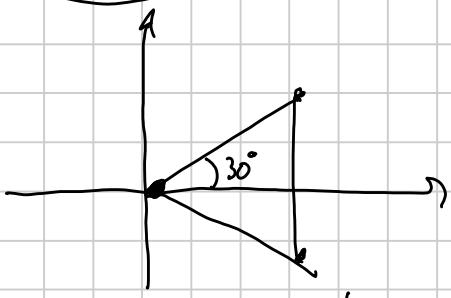
Tri equilatero con un vertice su ognuno dei lati a

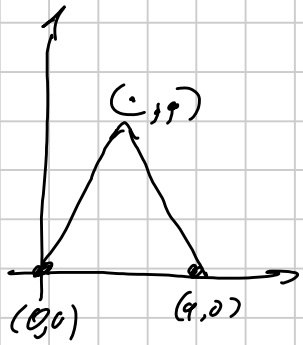
Trovare a^3



$$\begin{cases} 5 - 4\cos(\alpha+\beta) = a^2 \\ 10 - 6\cos(\alpha) = a^2 \\ 13 - 12\cos\beta = a^2 \end{cases}$$







$$\int_0^1 \sqrt{1-x^2}\,dx$$

$$\sqrt{\quad} + \sqrt{\quad} - \sqrt{\quad} = Ka^2$$

↑ pol in a di grado 4

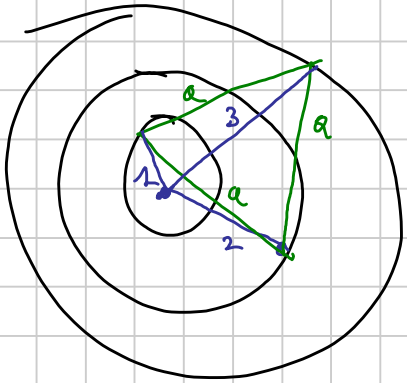
1) Sol. SACCENTE

Teo di TOLOMEO

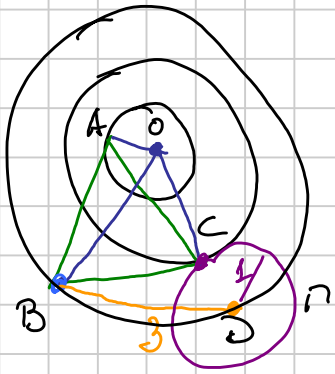
A, B, C, D sono su una circ. che in questo ordine

$$\Updownarrow$$

$$AB\cdot CD + AD\cdot BC = AC\cdot BD$$



$$1\cdot a + 2\cdot a = 3\cdot a$$



$BD = BO$ $D \in$ cfr. esterna

Γ con centro in D e raggio 1

$\Downarrow$

$C \in \Gamma$

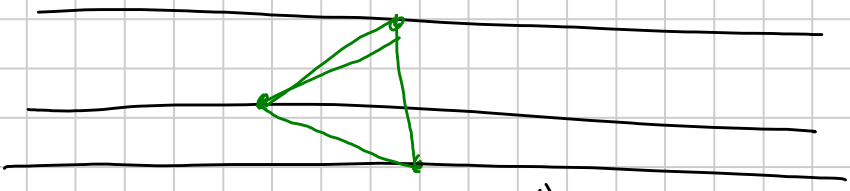
Rotaz. di $\frac{\pi}{3}$ in B (senso orario)

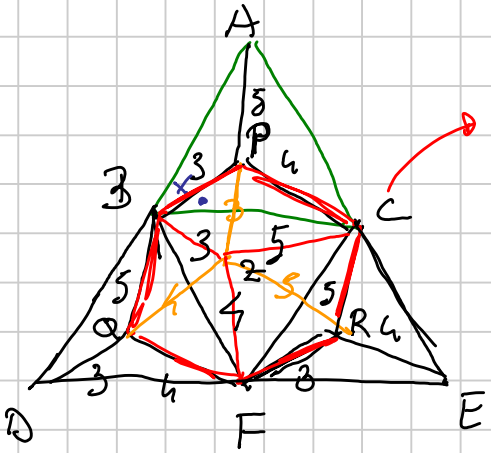
$A \to C$

$O \to D$

$\Rightarrow B\hat{O}A \cong B\hat{D}C$

$1+2=3 \Rightarrow D, C, O$ sono allineati.





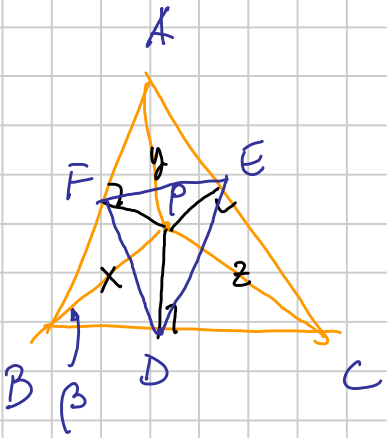
3 tri. equi: 3, 4, 5

3 tri. rett. di lati 3, 4, 5

$A\hat{B}P + P\hat{B}C = 60°$

$2\hat{B}C = A\hat{B}P$

$\Rightarrow 2\hat{B}P = 60°$



$DF = ?$

$BDPF$ ciclico (2 angoli RETTI)

$\Downarrow$

BP diametro $\Rightarrow 2R = x$

$DF = x \cdot \sin(\beta) = x \cdot \frac{AC}{2\rho}$

$\sin\beta = \frac{AC}{2\rho}$ ρ = raggio cfr. circoscritta ad ABC

$BF = x \cdot \frac{AC}{2\rho}$

$DE = z \cdot \frac{BA}{2\rho}$

$EF = y \cdot \frac{BC}{2\rho}$

$DF = \frac{a}{2\rho}$ $DE = \frac{2a}{2\rho}$ $EF = \frac{3a}{2\rho}$

D, E, F allineati

In generale, ABC triangolo, $P \in$ circonferenza circoscritta

$\Updownarrow$

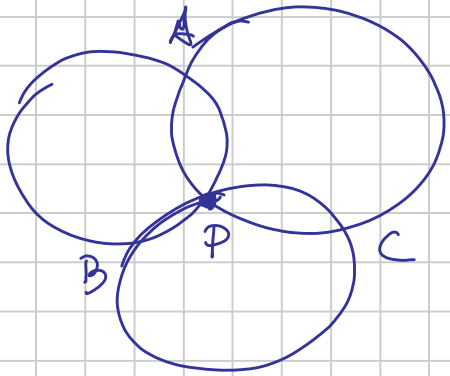
le sue proiez. sui lati sono allineate.

A $\quad$ B

P t.c. $PA = 2$
$PB = 1$

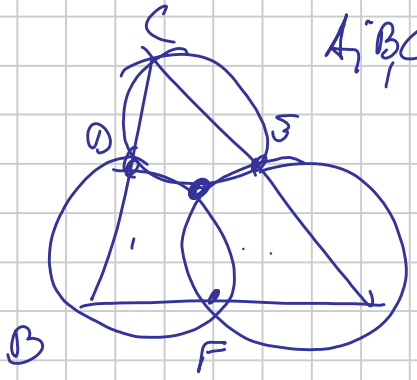
P t.c. $\frac{PA}{PB} = 2$

$PA^2 = 4\,PB^2$



3 ch. uguale per P

$\Rightarrow$ la circ per A, BC ha lo stesso raggio



$A'B'C'$ $\quad$ D, E, F ne contiene ch. per DEC

AE, F Concorrono BFD