

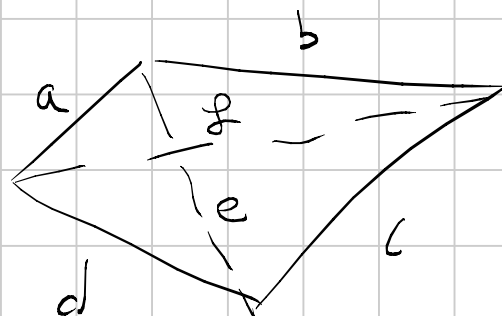
Senior 2006 - Geometria 3 - esercizi

3, 6,
7, 8

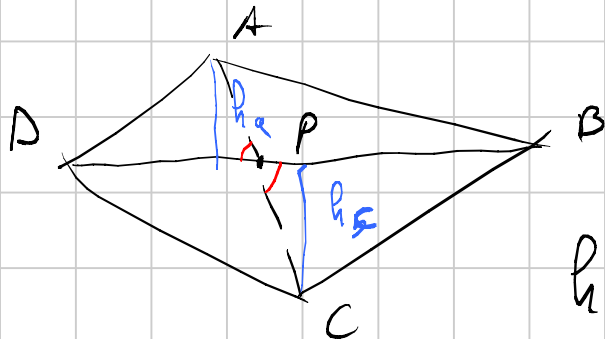
Titolo nota

14/09/2006

$$3) 2S \leq ac + bd$$



a) Convesso



θ angolo conv

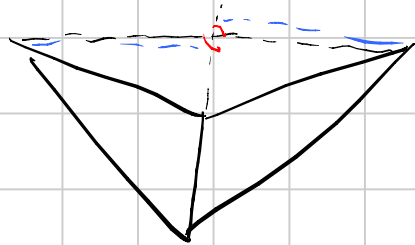
$$h_a = AP \cdot \sin(\theta) \quad S = \frac{1}{2} DB \cdot (h_a + h_c) =$$

$$h_c = CP \cdot \sin(\theta)$$

$$= \frac{1}{2} DB \cdot (AP + CP) \sin \theta =$$

$$= \frac{1}{2} DB \cdot AC \sin \theta$$

o) Con lavo

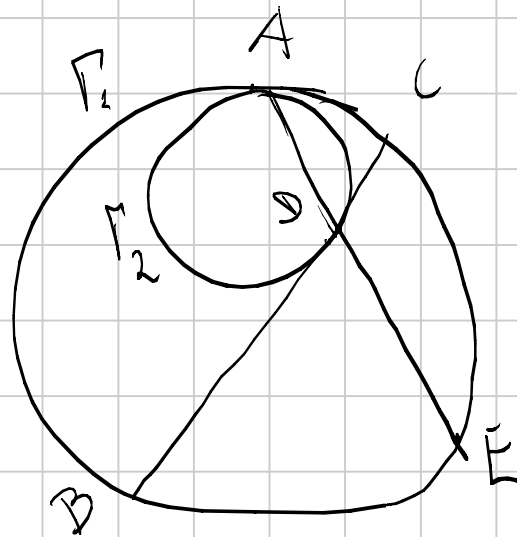


$$S = \sigma \pi r^2 \cos \theta$$

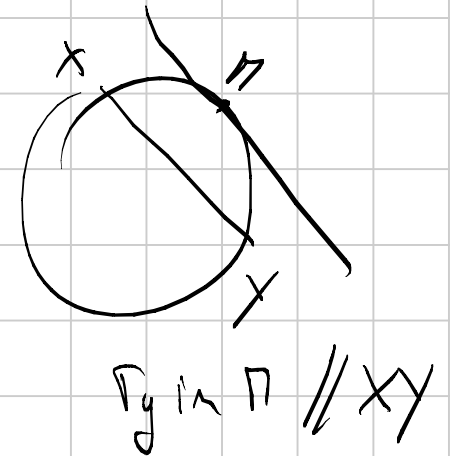
$$2S = e f \sin \theta \leq (ac + bd) \sin \theta$$

$$2S \leq e f \leq ac + bd$$

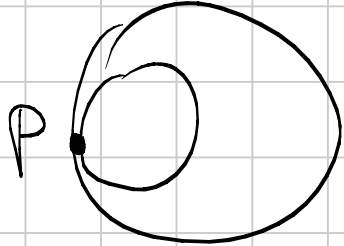
6) homothety



a.)



$E \cap \Gamma$ med $\widehat{BC} \Leftrightarrow \forall \gamma \text{ in } E \parallel BC.$

b.)  2 sp. $\forall \gamma \text{ in } P \Leftrightarrow \exists$ unost di centro P che manda una nell'altra.

$\Rightarrow \Gamma_2, \Gamma_1 \forall \gamma \text{ in } A \Leftrightarrow \exists$ unost di centro A (\mathcal{H}) s.c.
 $\mathcal{H}(\Gamma_2) = \Gamma_1$

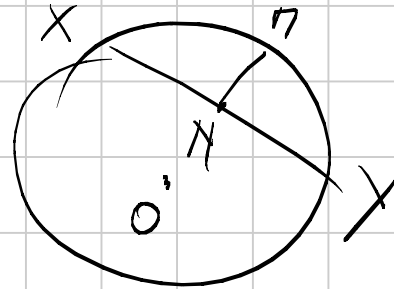
$\Rightarrow E = \mathcal{H}(D) \Rightarrow \mathcal{H}(\forall \gamma \text{ in } D) =$

$\mathcal{H}(r) \parallel r \quad \forall$ retta $r \Rightarrow \forall \gamma \text{ in } E \sim \Gamma_1 \parallel \forall \gamma \text{ in } D \sim \Gamma_2$

\Rightarrow Γ_g in Π , $\parallel BC \Rightarrow$ (per a) \in Γ med
 di BC .

Prin Lemma:

a)



$$XN = NY$$

$$\widehat{XN} = \widehat{NY}$$

$$\Rightarrow MN \perp XY$$

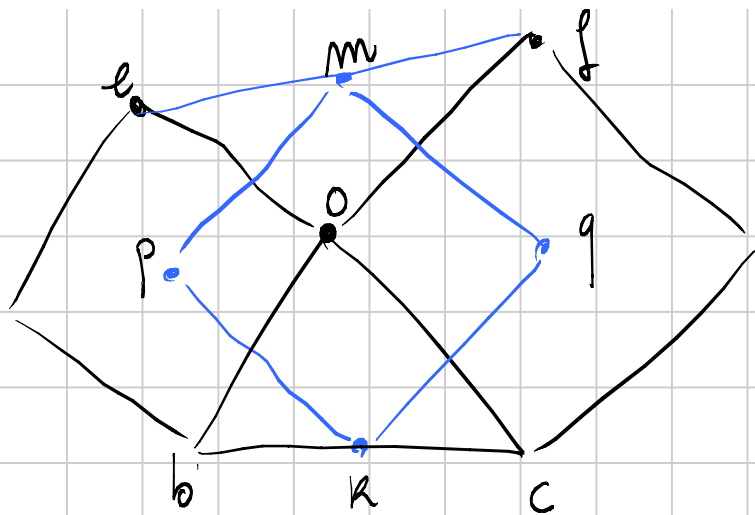
$$\Rightarrow MN \text{ passe par } O$$

$$\Rightarrow \Gamma_g \text{ in } \Pi \perp MO \parallel MN \perp XY$$

$$\Rightarrow \Gamma_g \text{ in } \Pi \parallel XY$$

$$\Gamma_g \text{ in } \Pi \parallel XY \Rightarrow MO \perp XY \Rightarrow \widehat{XN} = \widehat{NY}$$

7)



$$\omega = \frac{1}{\sqrt{2}} + i \frac{1}{\sqrt{2}}$$

$$\omega^{-1} = \frac{1}{\sqrt{2}} - i \frac{1}{\sqrt{2}}$$

$$e = -ib$$

$$f = ic$$

$$k = \frac{b+c}{2}$$

$$m = i \frac{c-b}{2} = \frac{e+f}{2}$$

$$p = \frac{\omega^{-1}b}{\sqrt{2}}$$

$$q = \frac{\omega c}{\sqrt{2}}$$

$$= b \left(\frac{1}{2} - \frac{i}{2} \right)$$

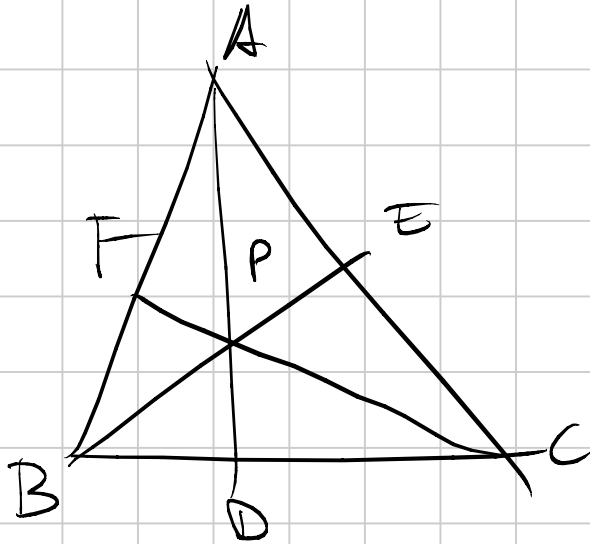
$$= c \left(\frac{1}{2} + \frac{i}{2} \right)$$

$$i(p-m) = (q-m)$$

$$-i(p-k) = (q-k)$$

$$i \left(\frac{b}{2} - \frac{ib}{2} - \frac{ic}{2} + \frac{ib}{2} \right) = \left(\frac{c}{2} + \frac{ik}{2} - \frac{ic}{2} + \frac{ib}{2} \right)$$

8)



$$\frac{AF}{FB} + \frac{AE}{EC} = \frac{AP}{PD}$$

$$\frac{AF}{FB} = \frac{S_{APF}}{S_{BPF}} = \frac{S_{AEP}}{S_{BEP}} = \frac{S_{ACP}}{S_{BCP}}$$

$$\frac{AE}{EC} = \frac{S_{APE}}{S_{PEC}} = \frac{S_{ABE}}{S_{EBC}} = \frac{S_{APB}}{S_{PBC}}$$

$$\frac{AP}{PD} = \frac{S_{APC}}{S_{PDC}} = \frac{S_{BPA}}{S_{BPD}} = \frac{S_{APC} + S_{BPA}}{S_{PBC}}$$

