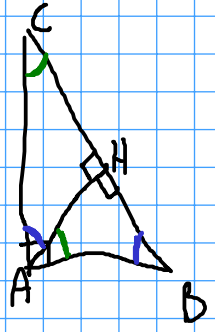
GEOMETRIA 1/2/2019

Criteri di similitudine

1. 3 angoli congruenti (2) ←
2. 2 lati proporzionali e l'angolo compreso congruente ←
3. 3 lati direttamente proporzionali



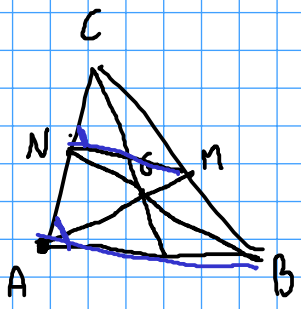
$ACH \sim ABC$ $AC:BC = CH:AC$

$AC^2 = CH \cdot CB$

— o — o —

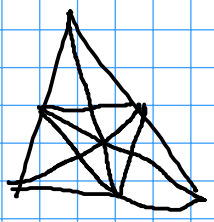
Punti notevoli

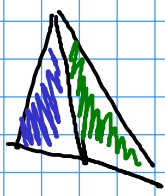
Baricentro (mediane)



$AG = 2\,GM$

$CNM \sim CAB$

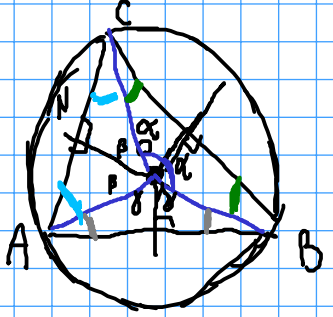


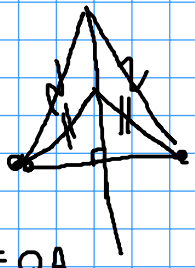


area uguale

— o — o —

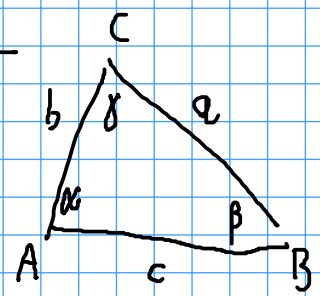
Circocentro (assi)





$OC = OA$

$OA = OB$



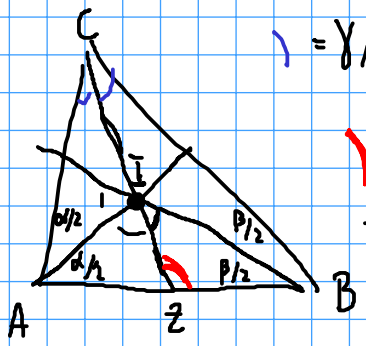
$= 90 - \alpha$

$= 90 - \gamma$

$\hat{COB} = 2\alpha$ COB è isoscele) $= 90 - \beta$

—o—o—

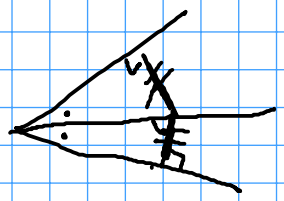
Incentro (bisettrici)



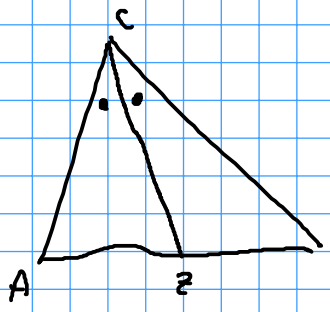
) $= \gamma/2$

) $= \alpha + \gamma/2$

$\hat{ZIB} = 180 - \alpha - \gamma/2 - \beta/2 = \frac{\beta + \gamma}{2}$



Teorema delle bisettrici



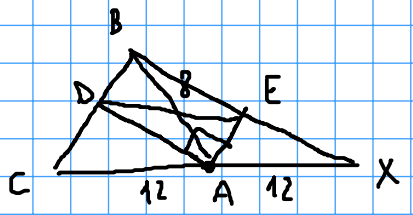
$AC : AZ = CB : BZ$

—o—o—

Esercizio

$CX = 24$ m

$AB = 8$ m $\quad BC = 10$ m



Raggio di circonferenza circoscritta a ADE ?

$\frac{DB}{DC} = \frac{AB}{AC} = \frac{AB}{AX} = \frac{BE}{EX}$

$\hat{EAD} = 90°$

$\frac{8}{12} = \frac{2}{3}$

$\frac{ED}{2}$? $DE \parallel CX$ $\frac{BC}{BD} = \frac{BD+DC}{BD} = 1 + \frac{DC}{BD} =$

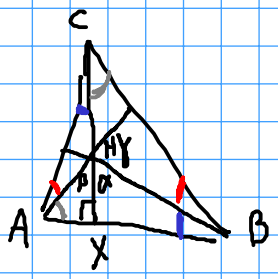
$= 1 + \frac{EX}{BE} = \frac{BE+EX}{BE} = \frac{BX}{BE} = 1 + \frac{3}{2} = \frac{5}{2}$

$DE = \frac{2}{5} \cdot CX$ $\frac{DE}{2} = \frac{CX}{5} = \frac{24}{5} = 4{,}8$ m

48

— o — c —

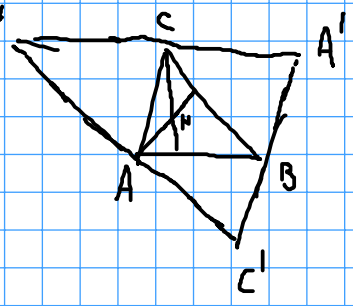
Ortocentro (altezze)



$\gamma = 90 - \alpha$

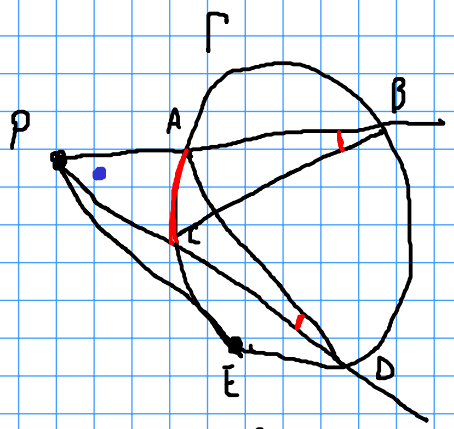
$\alpha = 90 - \gamma$

$\beta = 90 - \beta$



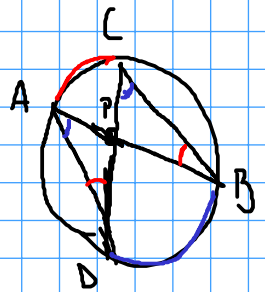
H è circocentro di $A'B'C'$

— o — o —



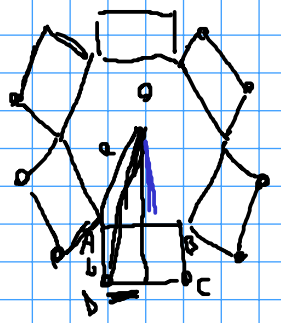
$\boxed{PA \cdot PB = PC \cdot PD} = PE^2$

$pow_\Gamma P = PA \cdot PB$



$PA \cdot PB = PC \cdot PD$

1.



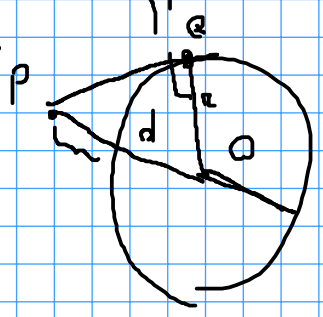
$$\left(\frac{\sqrt{3}}{2}a+b\right)^2+\left(\frac{a}{2}\right)^2=r^2$$

$$\frac{3}{4}a^2+\sqrt{3}ab+b^2+\frac{a^2}{4}=$$

$$=a^2+b^2+\sqrt{3}ab$$

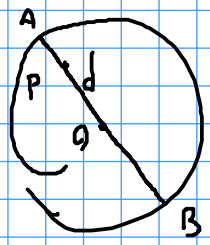
OAD a, b

2.



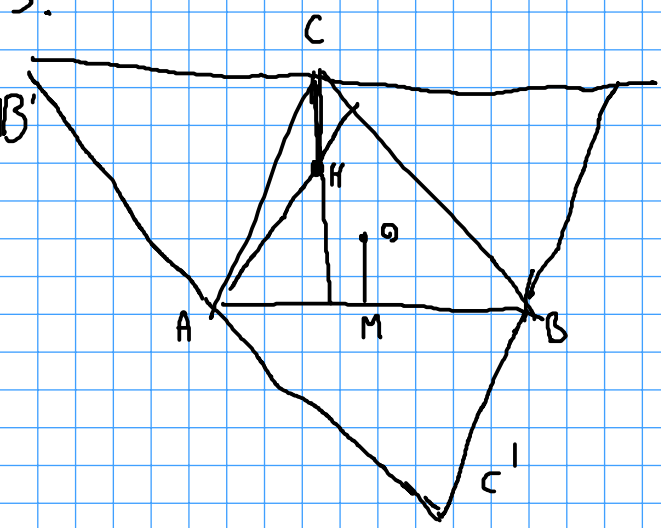
$$pow_\Gamma(P)=|d-r|(d+r)=\underline{d^2-r^2}$$

$$PQ^2=d^2-r^2$$



$$pow_\Gamma(P)=PA\cdot PB=(r-d)(r+d)=\underline{r^2-d^2}$$

3.



$CH=2(OM)$

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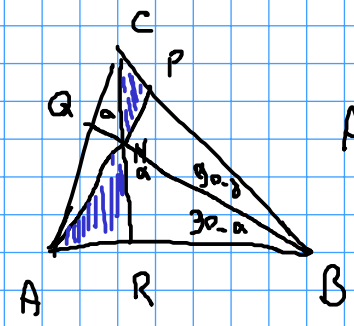
4.



$AH \cdot HP = BH \cdot HQ = CH \cdot HR$

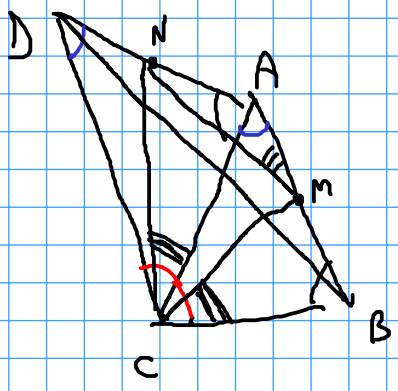
$CHQ \sim HRB$

$CH : HB = QH : HR$

$CH \cdot HR = HB \cdot QH$

$AH \cdot HP = CH \cdot HR$

5.



$B\hat{C}M = D\hat{B}A$

$ADC \sim ABC$

$AD : AB = AC : BC$

$\frac{AC}{BC} = \frac{\frac{1}{2}AD}{\frac{1}{2}AB} = \frac{AN}{BM}$

$ANC \sim BMC$ $\quad N\hat{C}A = M\hat{C}B$

$N\hat{C}M = A\hat{C}B \Rightarrow N\hat{A}M + N\hat{C}M = N\hat{A}C + C\hat{A}B + A\hat{C}B = 180^\circ$

$ANCM$ é cíclico

$A\hat{M}N = N\hat{C}A = M\hat{C}B$

$=$

$D\hat{B}A$