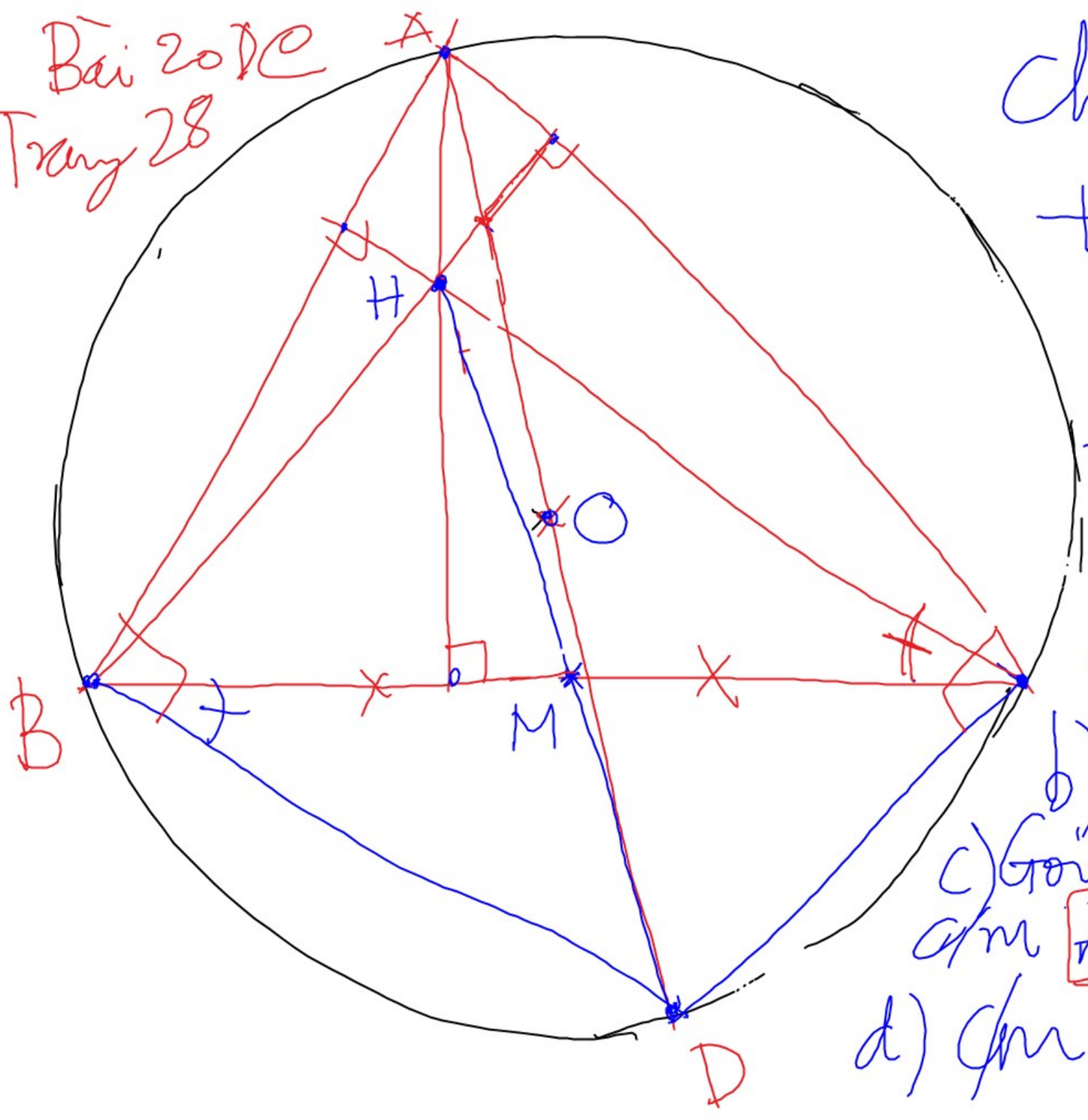
Bài 20 DC
Trang 28



Cho $(O;R)$ và ΔABC nhọn nội tiếp đường tròn. Kẻ đường kính AD & gọi H là trực tâm ΔABC. Lấy M là trung điểm BC.

a) Tứ giác BHCD là hình gì?

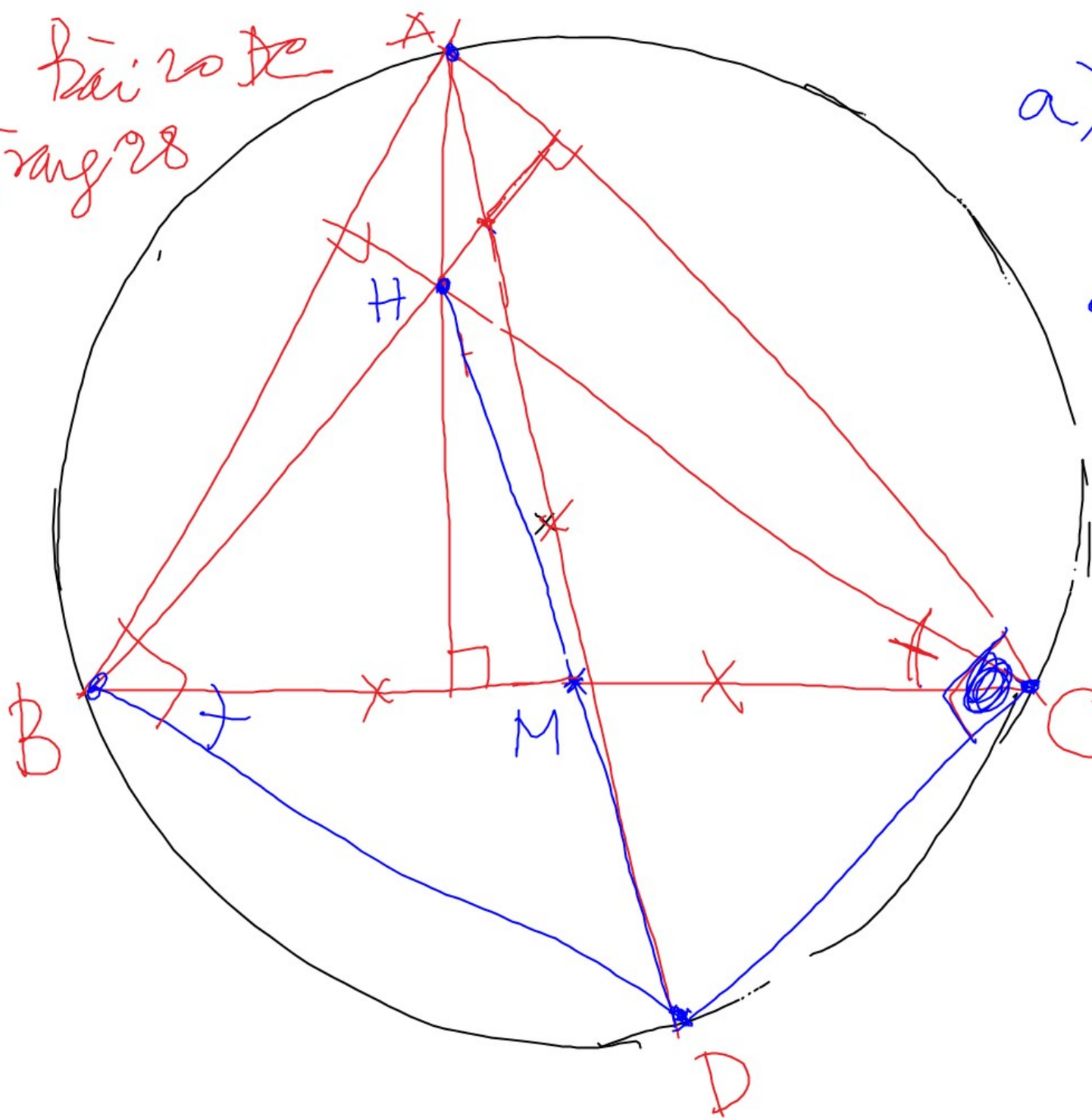
b) CMR M, H, D thẳng hàng $AH = 2OM$

c) Gọi E, F, K là chân các đường cao hạ từ B, C, A

c/m $AE \cdot AC = AF \cdot AB$

d) Chứng minh $AD \perp EF$

Bài 20 SGK
Trang 28



a) BHCD là hình gì?

- BD // CH
- BH // CD

$\Rightarrow$ BHCD là hbh

b) M là trung điểm của BC & BC là đường chéo hbh

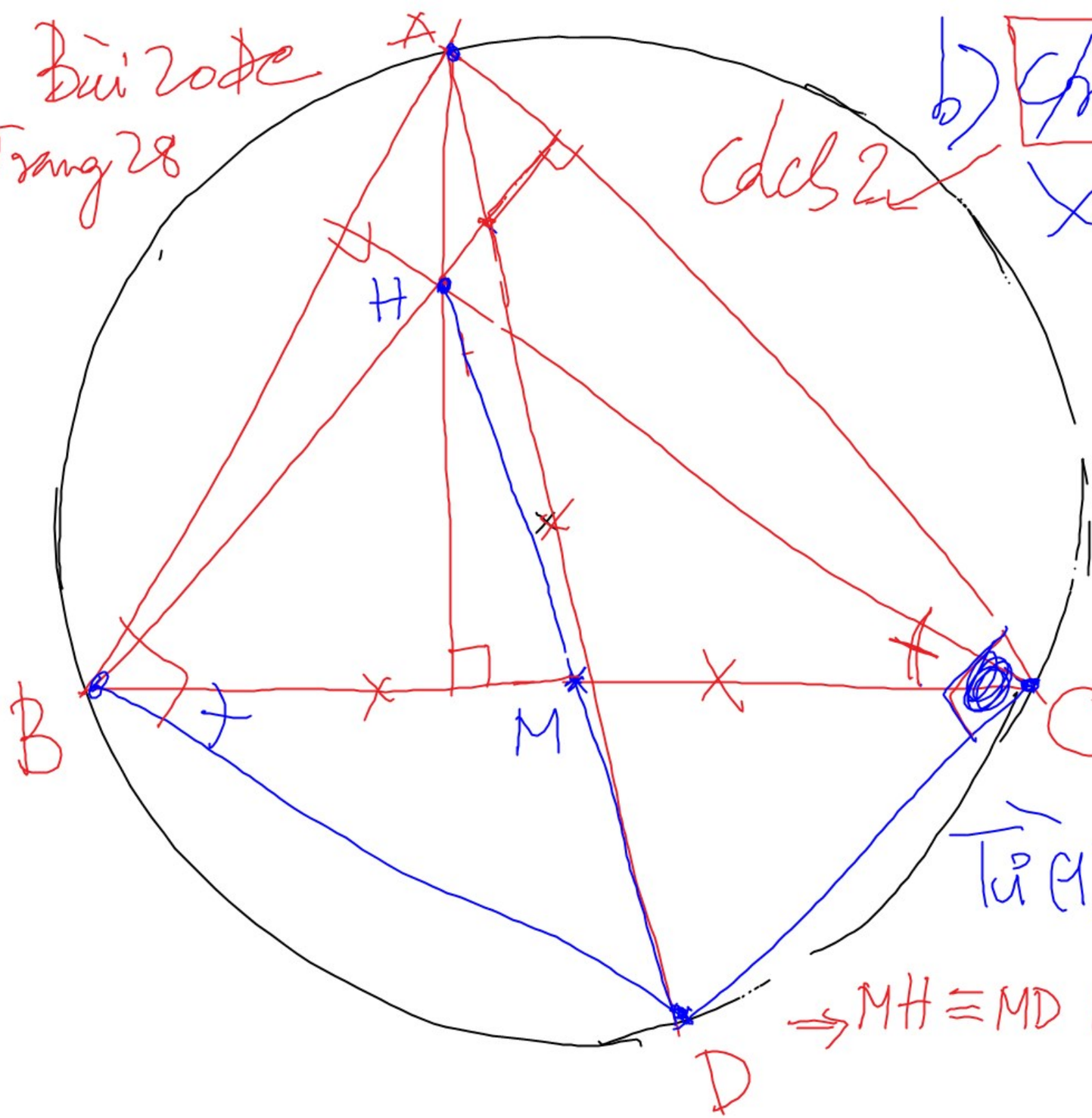
$\Rightarrow$ M là trung điểm của đường chéo của hbh BHCD

$\Rightarrow$ M $\in$ HD & MH = MD.

$\Rightarrow$ M, H, D thẳng hàng

Bài 20 sgk

Trang 28



cách 2

b) Cm M, H, D thẳng hàng

Xét ΔCMH và ΔBMD:

$\begin{cases} CM = BM \ (gt) \\ HC = DB \ (\text{hbh}) \\ \widehat{HCM} = \widehat{DBM} \ (\text{So le trong}) \end{cases}$

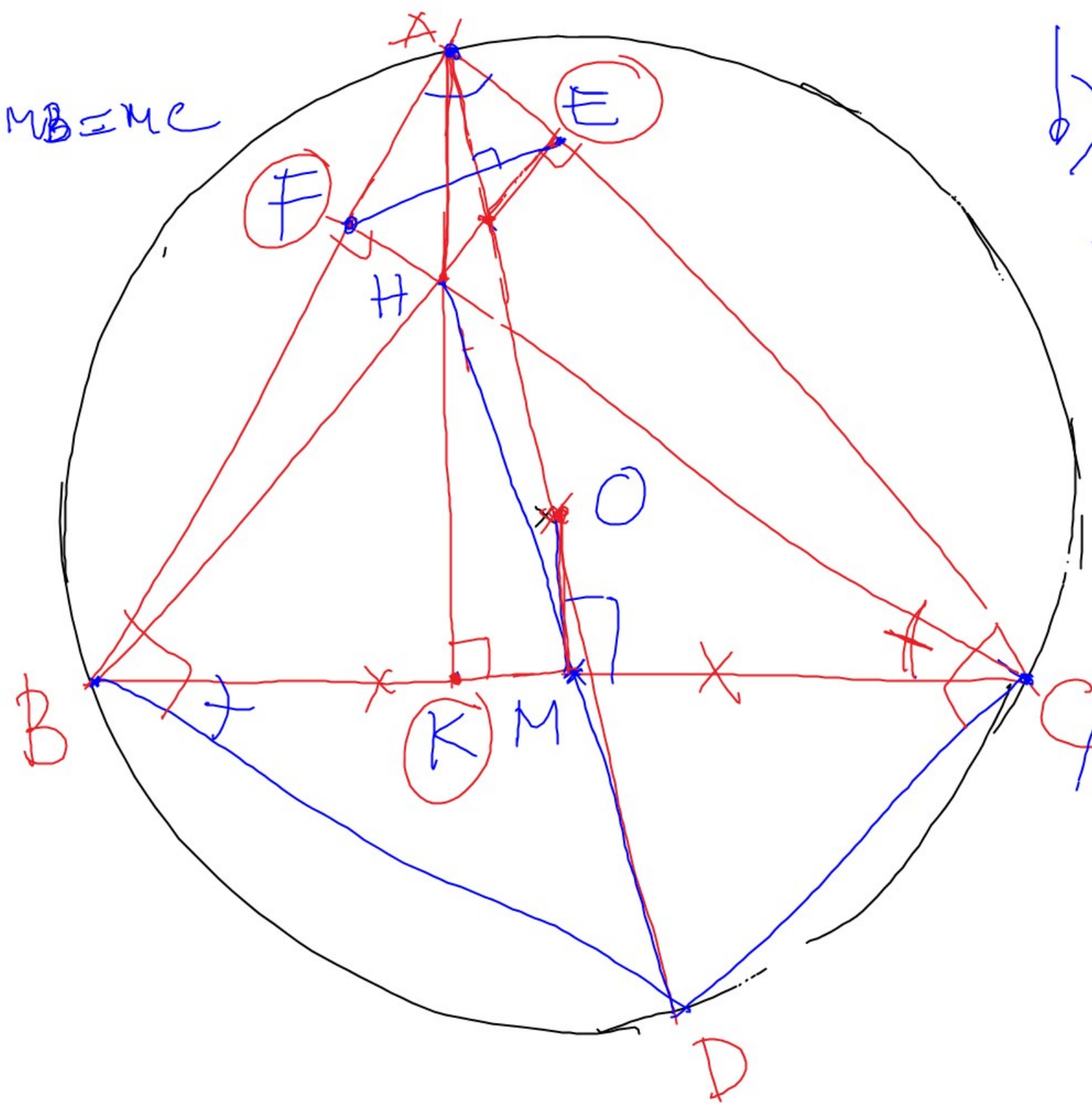
$\Rightarrow \Delta CMH = \Delta BMD$

$\Rightarrow \widehat{MHC} = \widehat{MDB}$ (góc tương ứng) (1)

Cm HC // BD (2)

Từ (1) & (2) $\Rightarrow$ MH // MD (góc có cặp trong cùng so le bằng nhau)

$\Rightarrow$ MH $\equiv$ MD hay M, H, D thẳng hàng



b) Cmr $AH = 2OM$

OM là đường trung bình ΔAHD

$\Rightarrow AH // OM$ và $AH = 2OM$

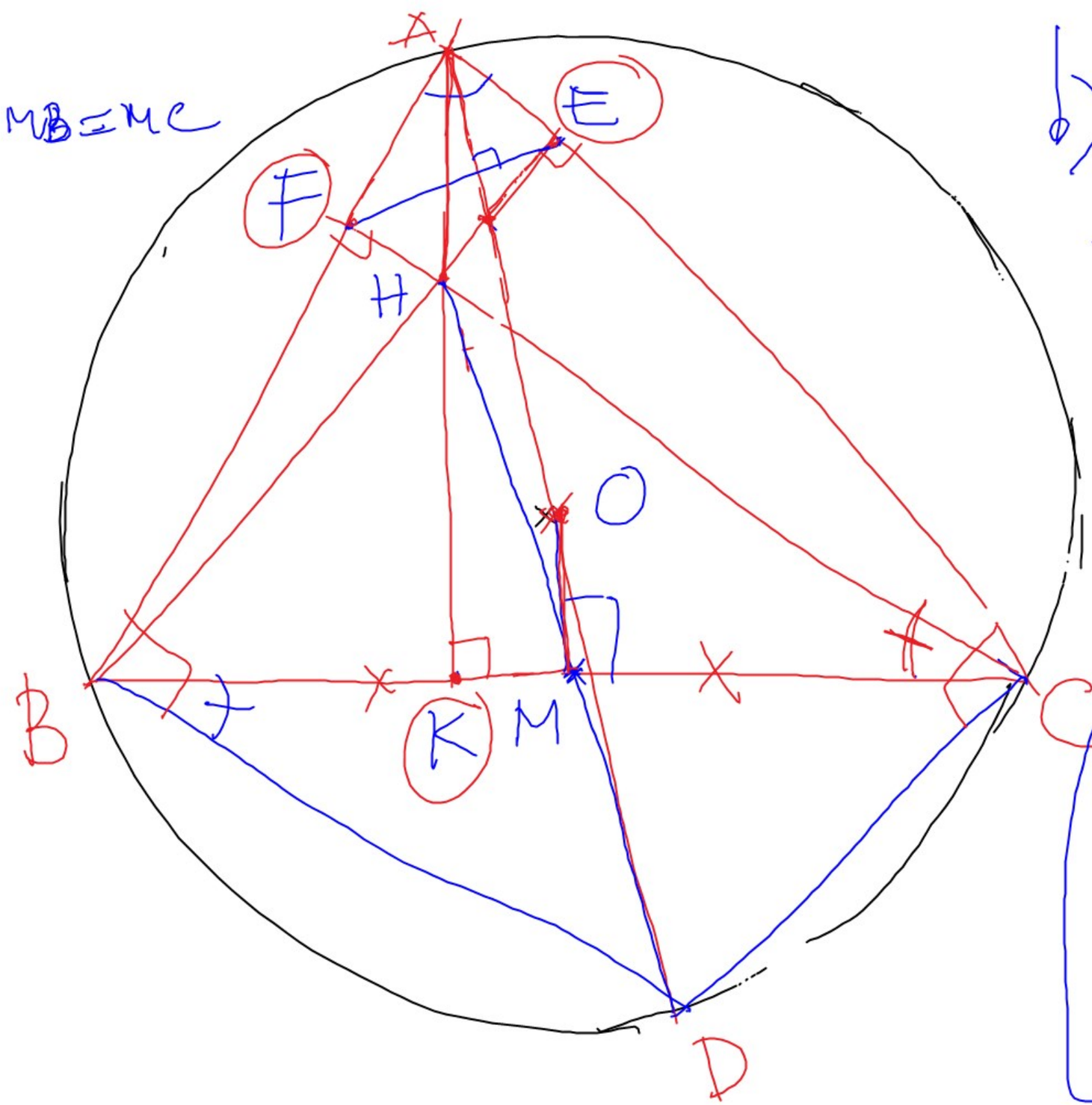
c) $AE \cdot AC = AF \cdot AB$

ΔAEB & ΔAFC (Vuông)

$\hat{A}$ chung $\Rightarrow \Delta AEB \backsim \Delta AFC$

$\Rightarrow \frac{AE}{AF} = \frac{AB}{AC}$

$\Rightarrow AE \cdot AC = AF \cdot AB$



b) Cmr $AH = 2OM$

OM là đường trung bình ΔAHD

$\Rightarrow AH // OM$ và $AH = 2OM$

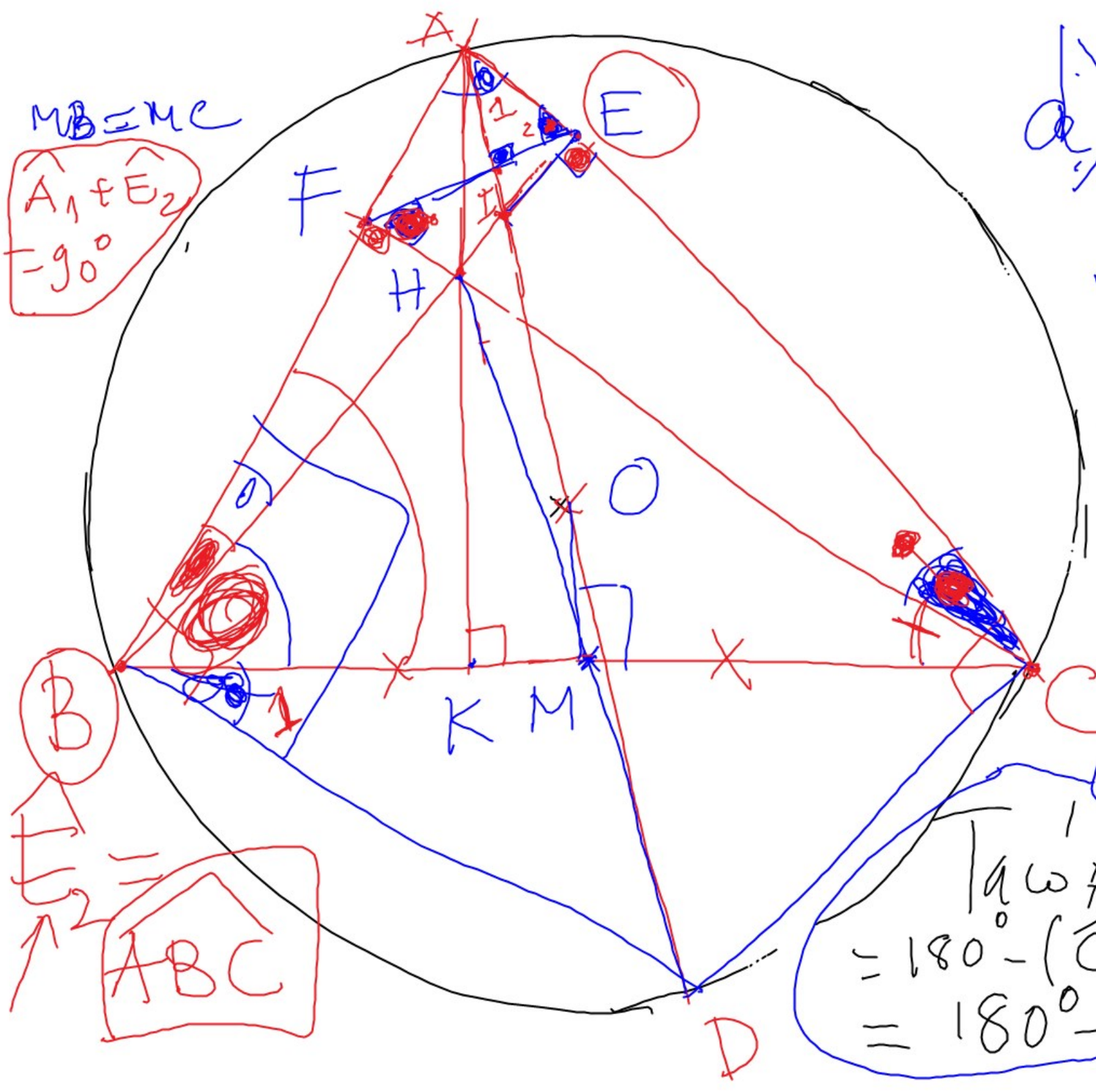
c) $AE \cdot AC = AF \cdot AB$

$\Rightarrow \frac{AE}{AB} = \frac{AF}{AC}$

$AB \cdot AC = 2AK \cdot R$

$AB \cdot CF = AK \cdot BC$

$AB \perp AC \Rightarrow AB \cdot CF$



a) CMR AD ⊥ EF

Gọi I là g điểm AD & EF. ✓

Xét (O), ta có $\hat{IAE} = \hat{CBD}$ (nội tiếp cùng chắn cung DC)

Xét △AEF & △ABC:

Ă chung

$\frac{AE}{AB} = \frac{AF}{AC}$ (cmt)

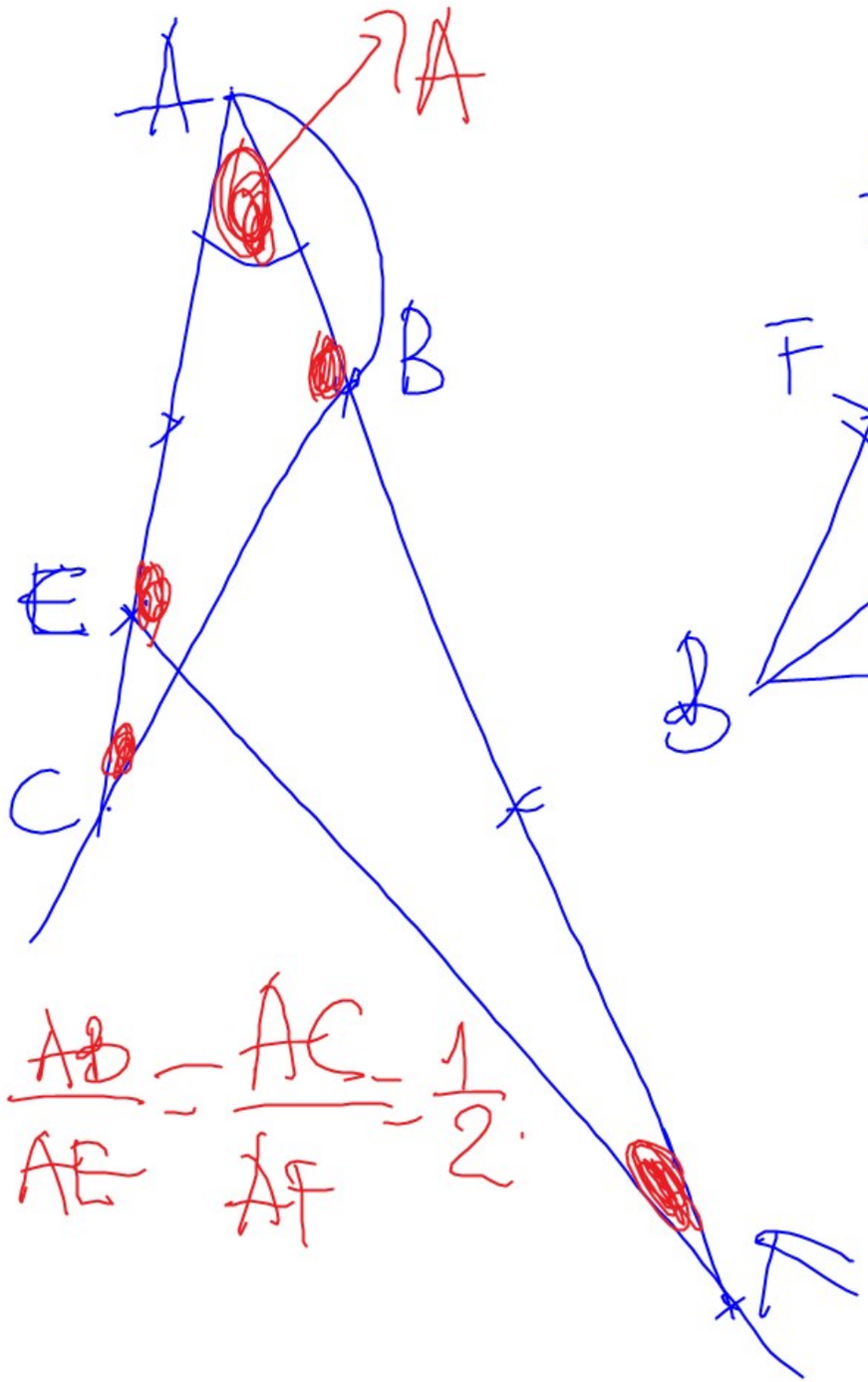
$\Rightarrow$ △AEF ∽ △ABC

$\Rightarrow \hat{AEF} = \hat{ABC}$

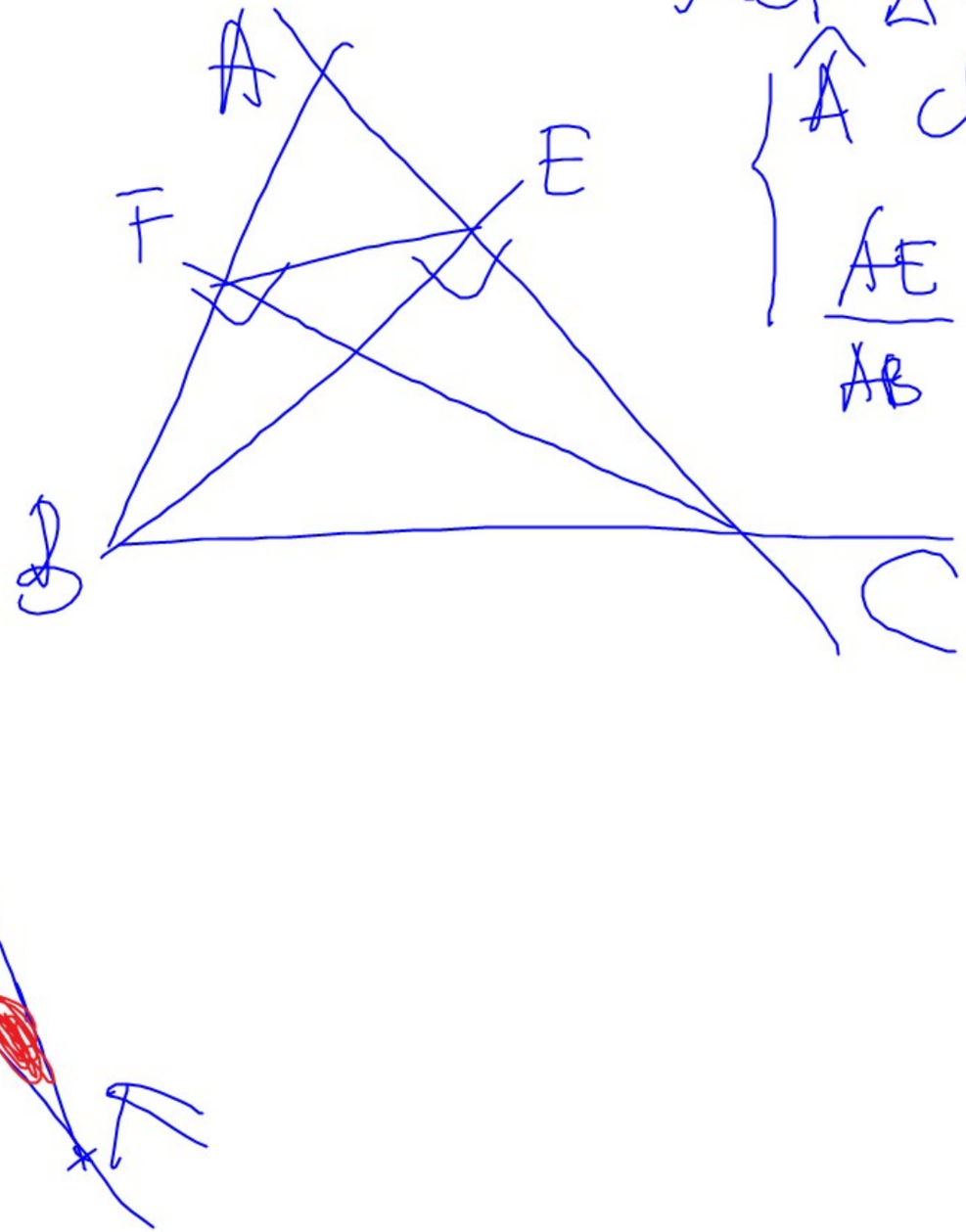
Lại có $\hat{AIE} = 180^\circ - (\hat{AEI} + \hat{IAE}) =$

$= 180^\circ - (\hat{CBD} + \hat{ABC}) = 180^\circ - \hat{ABD} =$

$= 180^\circ - 90^\circ = 90^\circ \Rightarrow AD \perp FE$



$$\frac{AB}{AE} = \frac{AC}{AF} = \frac{1}{2}.$$

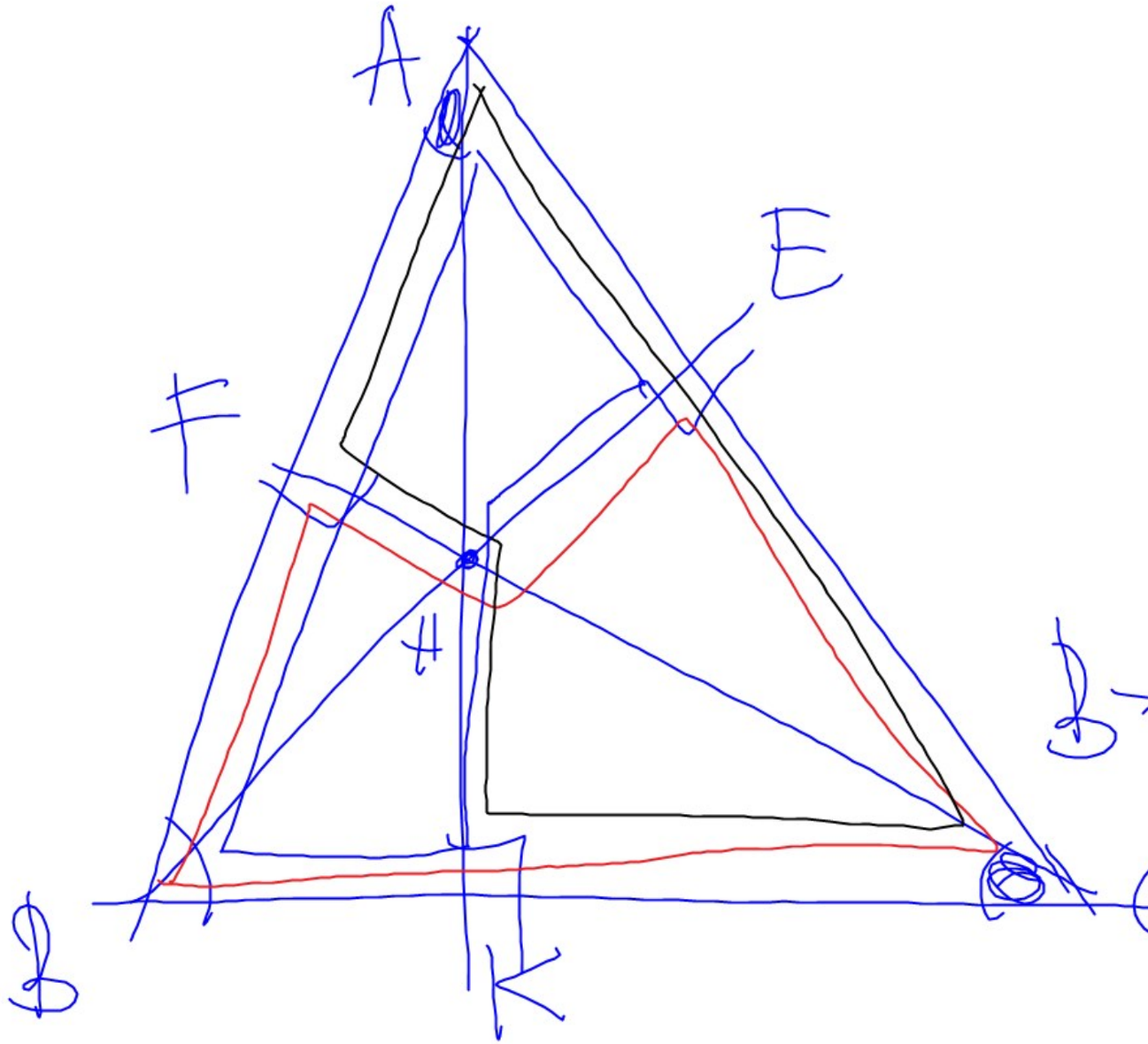


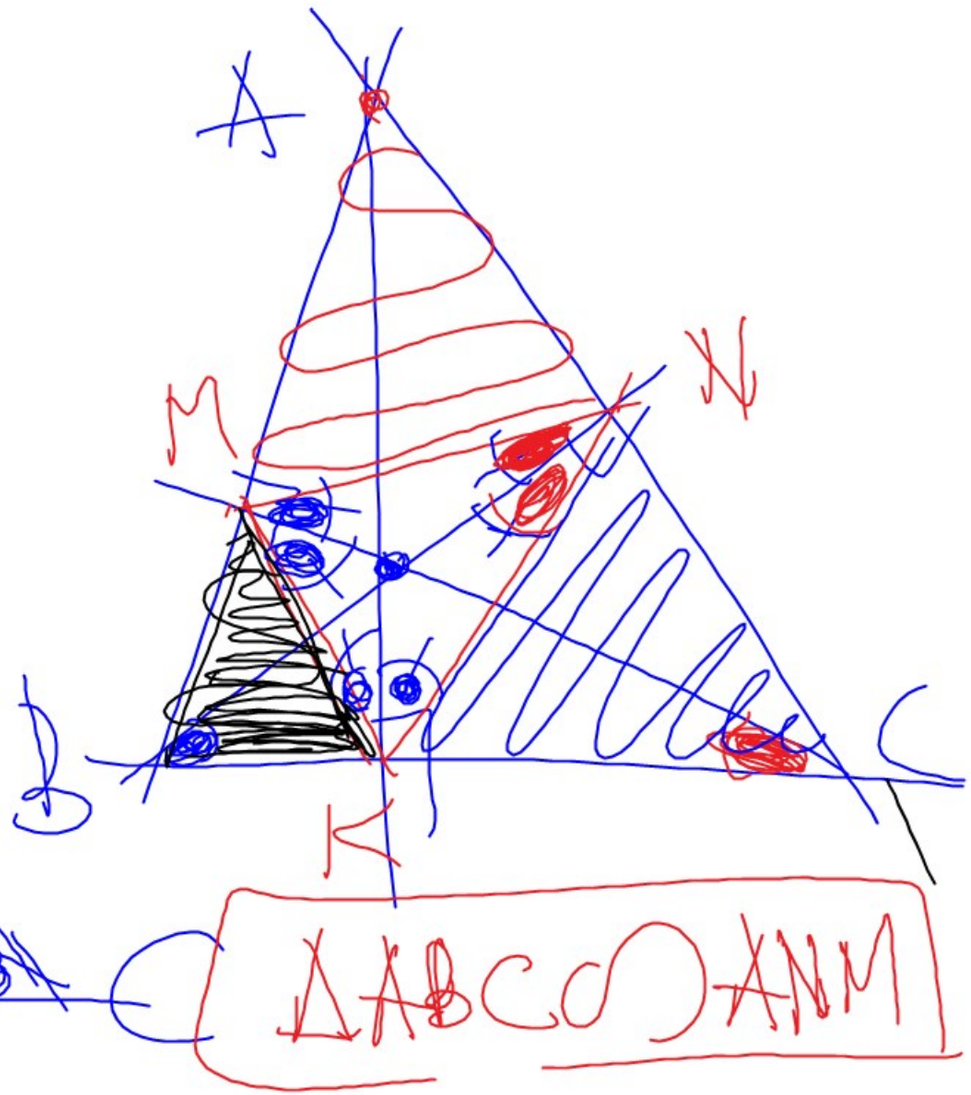
Xét $\triangle AEF$ & $\triangle ABC$

$\begin{cases} \hat{A} \text{ chung} \\ \frac{AE}{AB} = \frac{AF}{AC} \text{ (cmt)} \end{cases}$

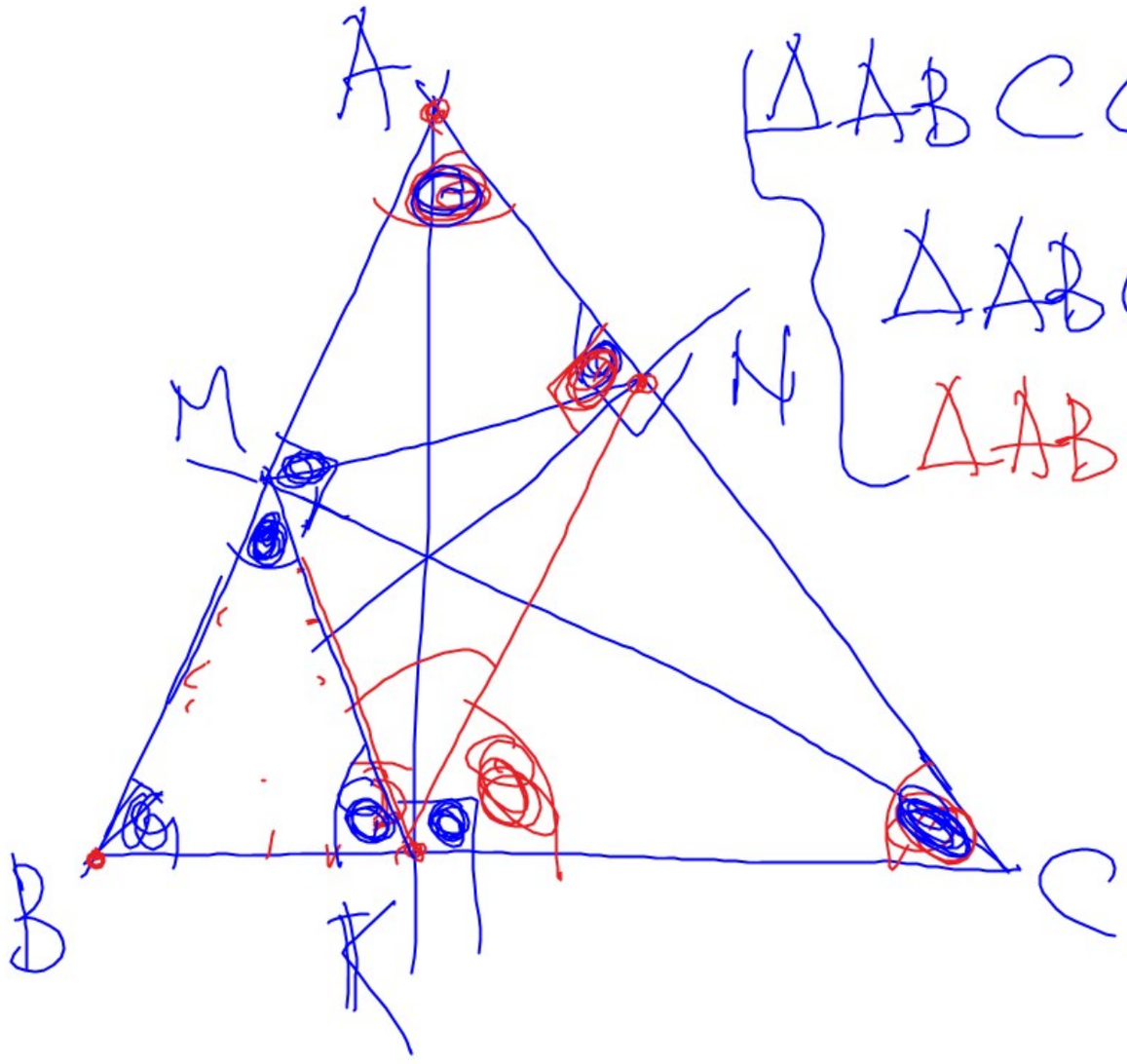
$\Rightarrow \triangle AEF \backsim \triangle ABC$

$\Rightarrow \hat{AEF} = \hat{ABC}$ (đpcm)





∽ ΔBKM



$\triangle ABC \sim \triangle ANM$

$\triangle ABC \sim KNC$

$\triangle ABC \sim KBM$