

MA = MB = MC

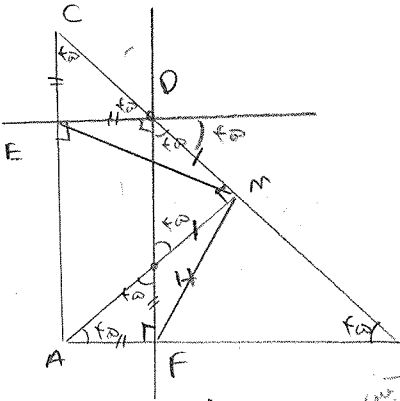
MB = MC \implies $\hat{B} = \hat{MAB} = \hat{C}$

سایه مساوی است

سایه مساوی است

بسیار است

AB = AC \implies $\hat{B} = \hat{C} = \hat{C}$



$\hat{HFA} = a$, $\hat{MAF} = \hat{C} = b \implies \hat{AHF} = b$ / $\hat{AHF} = \hat{MAF} = b \implies AF = HF$

$\hat{CED} = a$, $\hat{C} = b \implies \hat{CDE} = b$ / $\hat{CDE} = \hat{C} = b \implies CE = ED$

$\hat{A} = a$, $\hat{DEA} = a$, $\hat{AFD} = a \implies \hat{EDF} = a \implies AEDF$ متوازی الاضلاع

$\implies ED = AF$

$\implies AF = HF = ED = EC$

در مثلث های قائم الزامی است

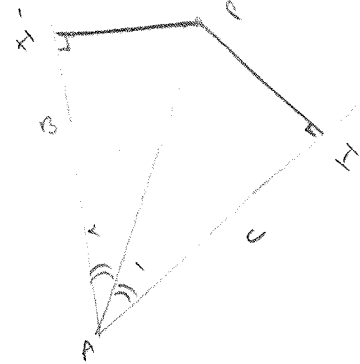
$\hat{DHM} = \hat{HDM} = \hat{C} = b \implies MD = MH$

$MD = MH$

$HF = DE$

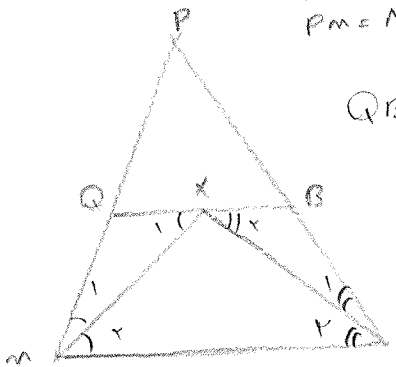
$\hat{MHF} = \hat{EDM}$

$\implies \triangle EDM \cong \triangle FHM \implies MF = ME$



$\hat{A}_1 = \hat{A}_2$, $AF = AP$, $H = H' = a$ $\implies \triangle APH \cong \triangle APH' \implies PH' = PH$

$PN = 1$
 $PM = 1$



$QB \parallel MN \implies \hat{Q}_1 = \hat{M}_1$, $\hat{Q}_2 = \hat{N}_2$

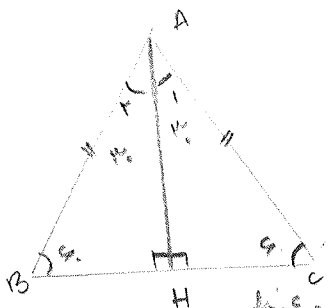
$\hat{Q}_1 = \hat{M}_1$, $\hat{M}_1 = \hat{N}_1 \implies \hat{Q}_1 = \hat{N}_1 \implies MQ = NX$ (1)

$\hat{Q}_2 = \hat{N}_2$, $\hat{N}_2 = \hat{P}_2 \implies \hat{Q}_2 = \hat{P}_2 \implies XB = BN$ (1)

$PQB \cong \implies PQ + QB + PB = PQ + QX + XB + PB \implies \underbrace{PQ + QX + PB}_{PM} = \underbrace{PQ + XB + PB}_{PN}$

$\implies PM + PN = 1 + 1 = 2$

ف - در مثل قائم الزامی ضلع مقابل زاویه ۳۰ نصف وتر است



مساوی الساقین

$$\left. \begin{aligned} AB=AC &\implies \hat{B}=\hat{C} \\ BC=AB &\implies \hat{A}=\hat{C} \\ AC=BC &\implies \hat{A}=\hat{B} \end{aligned} \right\}$$

مثلث ABC مساوی الساق است

$$\left. \begin{aligned} \hat{A}=\hat{B}=\hat{C} \\ \hat{A}+\hat{B}+\hat{C}=180 \end{aligned} \right\} \implies \hat{A}=\hat{B}=\hat{C}=60$$

طبق مجموع زوایا

ارتفاع AH را رسم می کنیم

$$\begin{aligned} \hat{A}_1 + 70 + 70 &= 180 \implies \hat{A}_1 = 40 \\ \hat{A}_1 + \hat{A}_2 &= 90 \implies \hat{A}_2 = 50 \end{aligned}$$

AC=BC
 $\hat{A}_1 = \hat{A}_2 = 40$
 AH=AH

مساوی الساقین

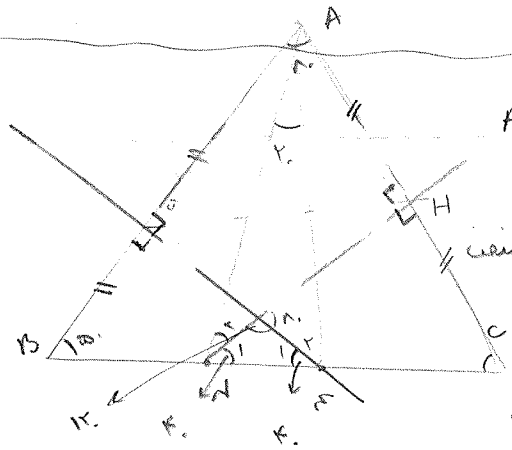
$$\implies \triangle ABH \cong \triangle ACH \implies$$

مساوی الساقین

$BH=HC$ (1)

$BH=HC$
 $BC=AC \implies BH+HC=AC$

$$\implies CH = \frac{1}{2} AC$$



مساوی الساقین

$$AB=AC \implies \hat{B}=\hat{C} = \frac{180-\hat{A}}{2} = 50$$

طبق قضیه فیثاغورس

مساوی الساقین

$$\implies AN=NC \implies \hat{NAB} = \hat{C} = 50$$

$$\implies MB=AM \implies \hat{MAB} = \hat{B} = 50$$

$$\left. \begin{aligned} \hat{NAB} = 50 \implies \hat{BAN} = 40 \\ \hat{MAB} = 50 \implies \hat{MAC} = 40 \end{aligned} \right\} \implies \hat{NAM} = 80$$

$m_1 = 80$
 $n_1 = 80$

$$\left\{ \begin{aligned} \hat{NAM} &= 80 \\ m_1 + m_2 &= 80 + m_2 \\ n_1 + n_2 &= 80 + n_2 \end{aligned} \right.$$

زوایای مقابل

مساوی زوایای مقابل و مساوی زوایای درونی

بنابراین دو مثلث قائم الزامی مساوی الساق است