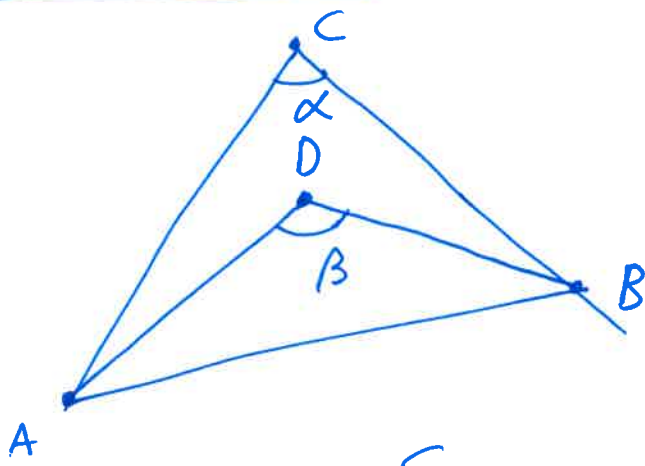


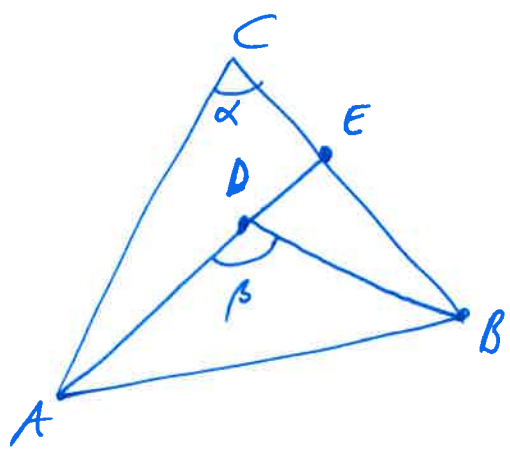
LAUSE 1.21

5



$$\Rightarrow \begin{cases} AD + DB < AC + CB \\ \beta > \alpha \end{cases}$$

Tod.



JATKETAAN SIVUA AD KUNNES SE LEIKKAA SIVUN CB, OLKON LEIKKAUSPISTE E.

KOLMIOEPÄ YHTÄLÖN (Δ -EY) NOJALLA

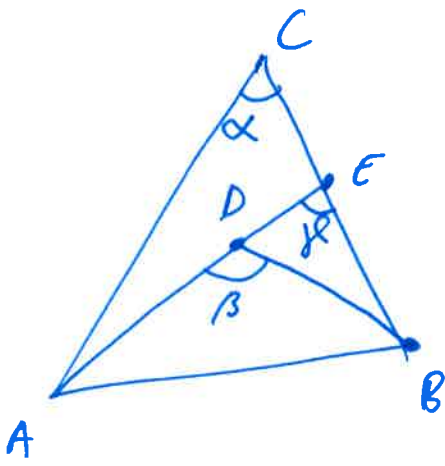
$$AC + CE > AE = AD + DE$$

~~MAKSA~~
+ $DE + EB > DB$

$$AC + CE + \cancel{DE} + EB > AD + \cancel{DE} + DB$$

$\underbrace{\hspace{10em}}_{= CB}$

$$\Rightarrow AC + CB > AD + DB$$

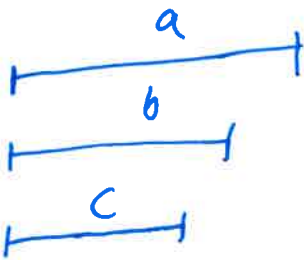


ULKO KULMA EPÄYHTÄLÖN
NOJALLA (2 KERTAA ~~...~~)
 $\alpha < \gamma < \beta$.



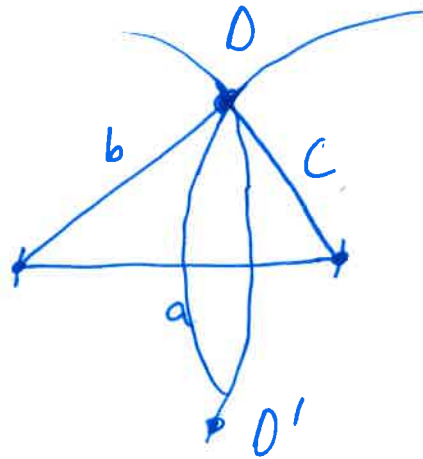
~~...~~
TEHTÄVÄ 1.22

(KOLMION KONSTRUKTIO)



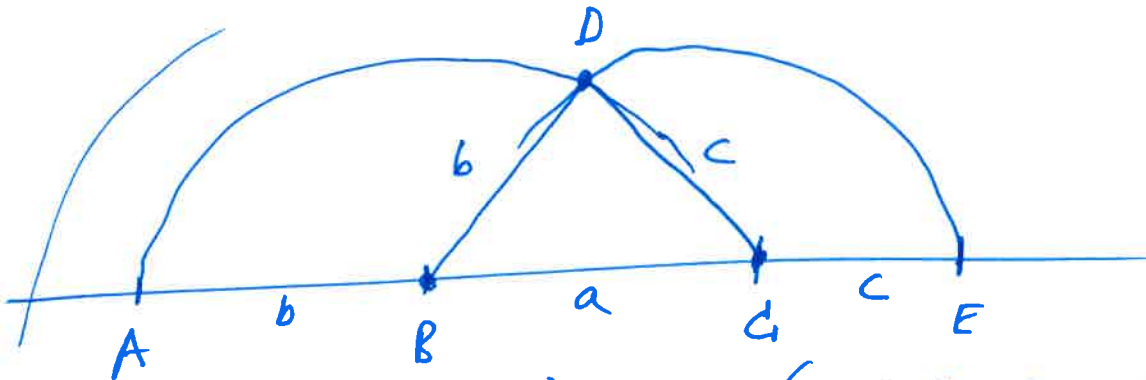
$$\begin{cases} a < b + c \\ b < a + c \\ c < a + b \end{cases}$$

\Rightarrow



Ratk.

PIIRRÄ SUORA JA ASETA SINNE
PISTEET A, B, G, E SITEN ETÄ
 $AB = b, BG = a, GE = c$

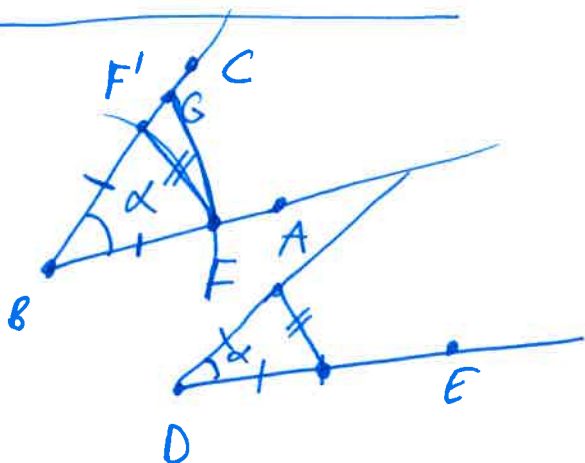


PIIRRÄ YMPYRÄT $C(B, BA)$ JA $C(G, GE)$.
OLKOON $\{D, D'\} = C(B, BA) \cap C(G, GE)$.
PIIRRÄ BD JA GD .
 \Rightarrow ON PIIRRETTY $\triangle BGD$, JOLLA ON
HALUTUN PITUISET SIVUT.

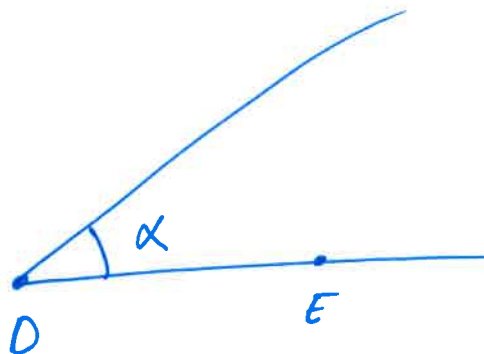
HUOM.

KOLMIJO EPÄYHTÄ LÖYTÄKÄSIVÄT,
ETÄ YMPÄRIT KANSTRUKTIOSSA
LEIKKASIVÄT.

TEHTÄVÄ 1.23



?
=>

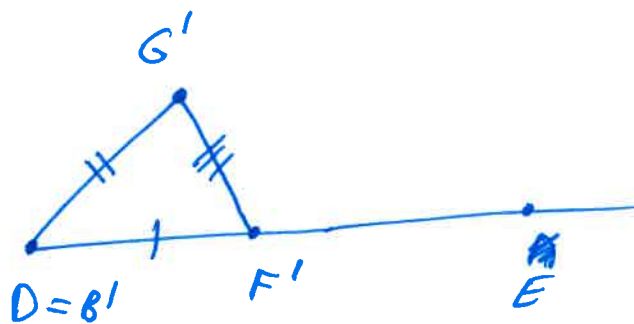
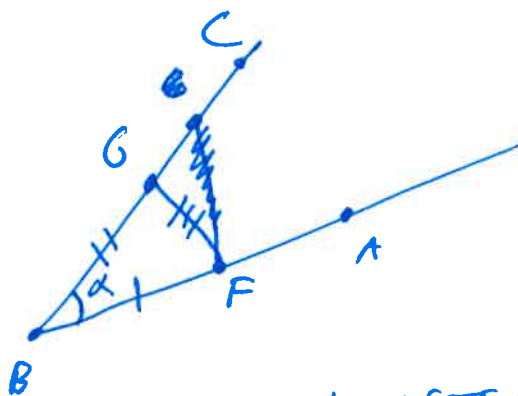


Ratk.

O TETAAN PISTEET $F \in \overrightarrow{BA}$ JA
 $G \in \overrightarrow{BC}$, PIIRRETÄIN FG ,
JOLLOIN MUODOSTUU $\triangle FBG$.

PIIRRETÄIN KOLMION $\triangle FBC$
KOPIO PUOLISUORAN \overrightarrow{DE} PÄÄLLE

~~(KOPIO = $\triangle F'B'G'$)~~ NIIN, ETÄ
 $B' = D$ JA $BF < \overrightarrow{DE}$.



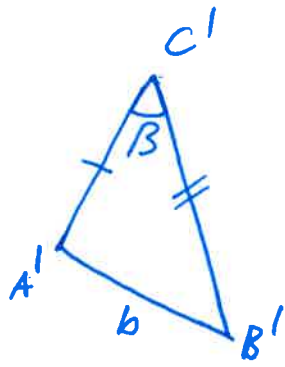
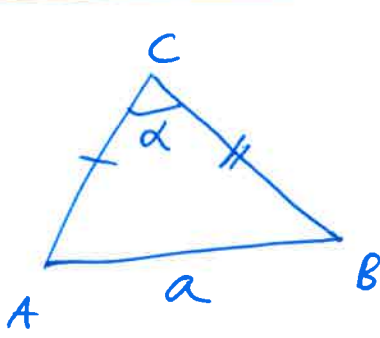
SKS-LAUSEEN NOJALLA

$$\triangle FBG \cong \triangle F'B'G'$$

JA SITEN $\sphericalangle F'B'G' = \sphericalangle FBG$.



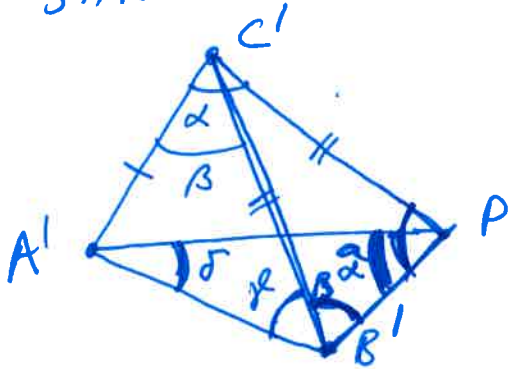
LAUSE 1.24



$$\alpha > \beta \Rightarrow a > b$$

Tod

SIIRRE TÄÄN KULMA α KÄRKEEN C'



PIIRRE TÄÄN P , JOLLE

$$\triangle A'PC' \cong \triangle ABC$$

~~PIIRRE~~ KUVAN TILANTEESSA PÄTEE

$$\angle C'PB' > \angle A'PB'$$

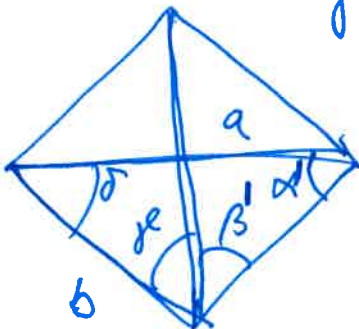
$$\Rightarrow \angle C'B'P = \angle C'PB' > \angle A'PB'$$

$$\angle PB'C'$$

$$\Rightarrow \beta > \alpha$$

SAMOIN $\angle A'B'P > \angle A'PB'$

$$\gamma > \delta$$



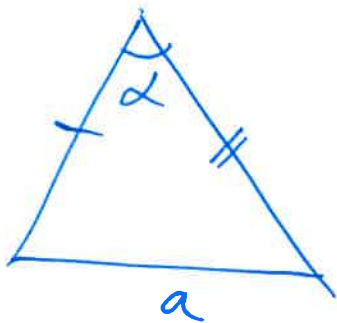
$$\begin{cases} \beta' > \alpha' \\ \gamma' > \delta' \end{cases}$$

$$\beta' + \gamma' > \alpha'$$

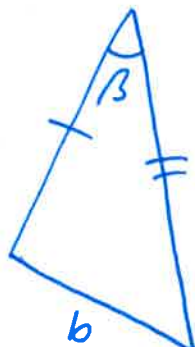
$$\Rightarrow a > b$$



LAUSE 1.25



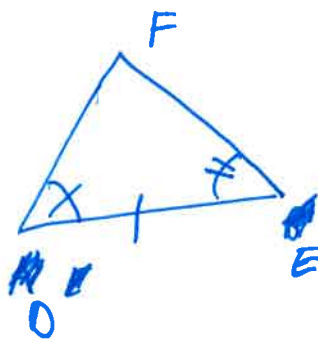
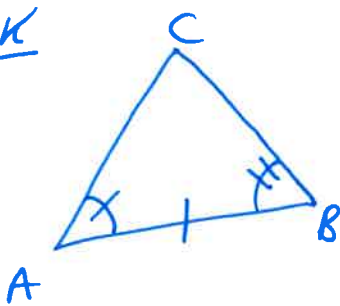
$$a > b \Rightarrow \alpha > \beta$$



Tod. ANTI TERSILLI.
 $\left\{ \begin{array}{l} \alpha = \beta \Rightarrow \cong \text{ (SKS)} \\ \alpha < \beta \Rightarrow b > a \Rightarrow \text{ (L.1.24)} \end{array} \right.$
 \square

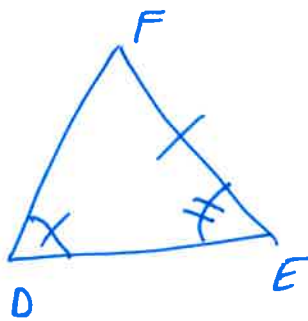
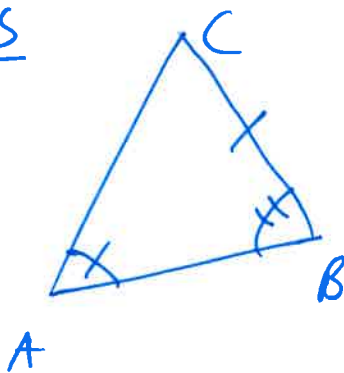
LAUSE 1.26 (KSK JA KKS)

KSK



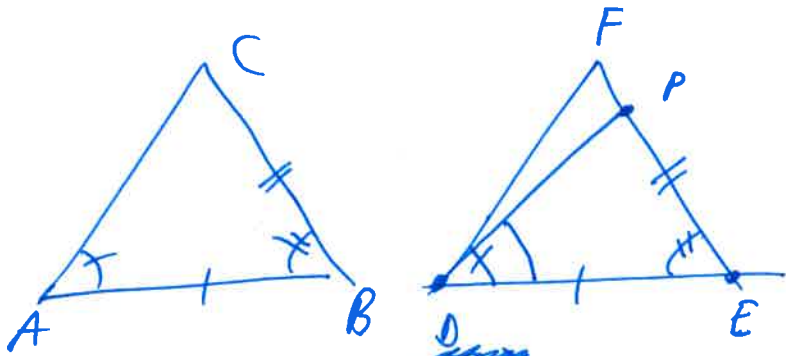
$$\Rightarrow \triangle ABC \cong \triangle DEF$$

KKS



$$\Rightarrow \triangle ABC \cong \triangle DEF$$

Tod. (KSK) AT. $EF > CB.$



O TETAAN $P \in FE$ JOLLE $PF = CB,$

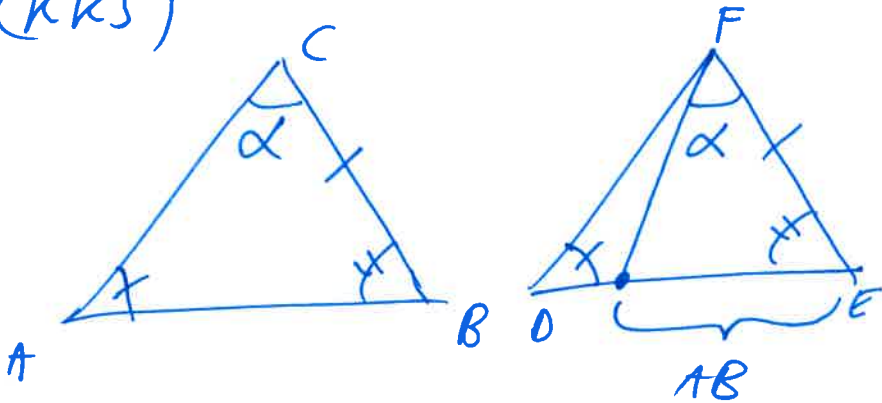
SKS - LAUSEEN NOJALLA $\triangle DEP \cong \triangle ABC$

JA VASTINOSINA $\sphericalangle BAC = \sphericalangle EDP,$

OLETKSEN NOJALLA $\sphericalangle BAC = \sphericalangle EDF,$

MUTTA $\sphericalangle EDP < \sphericalangle EDF.$ \Downarrow

(KKS)



AT

5