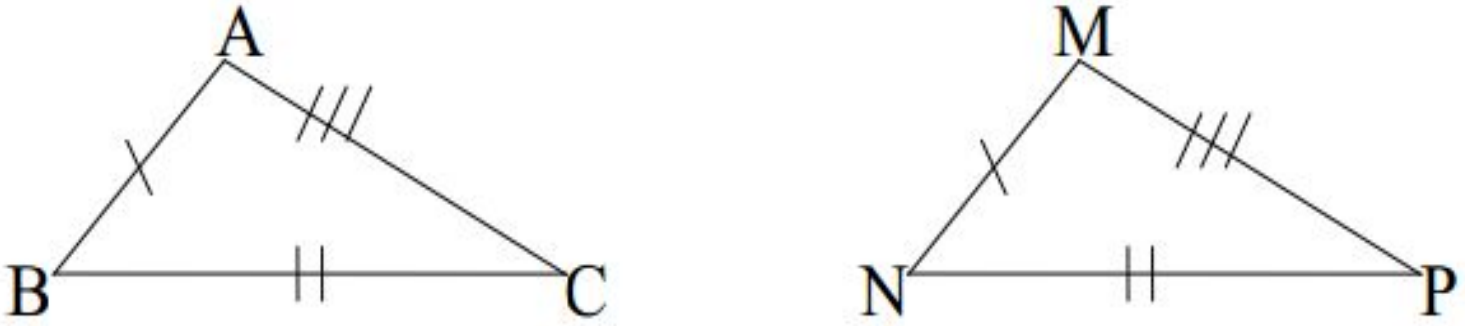
Criterii de congruență

clasa a VII-a

a triunghiurilor

Criteriile de congruenţă a triunghiurilor oarecare

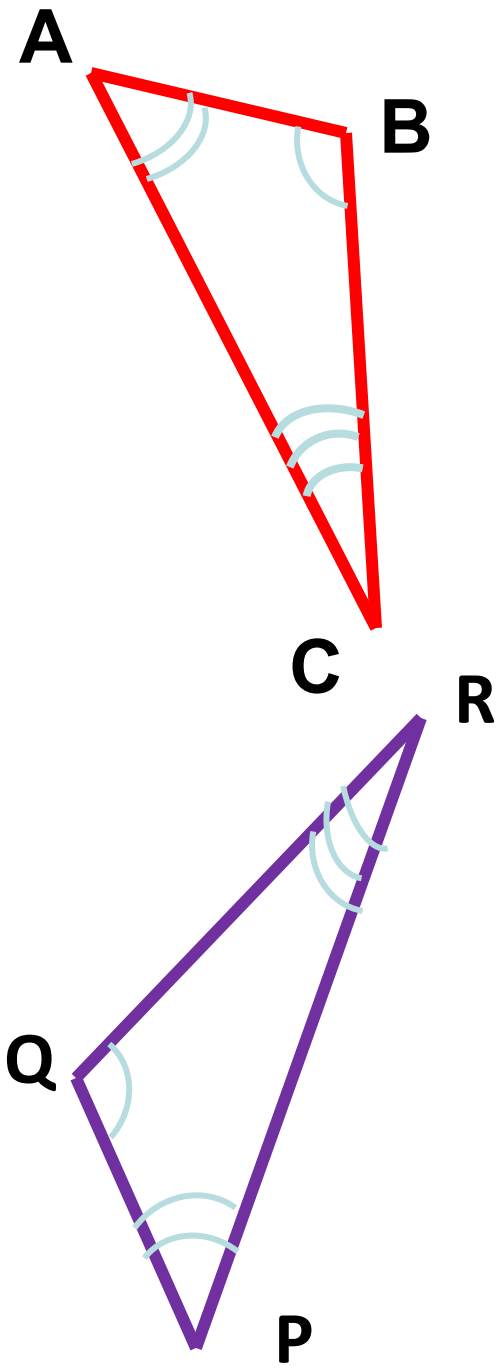
Două triunghiuri se numesc congruente dacă au laturile şi unghiurile omoloage, respectiv congruente.



Notaţie: $\Delta ABC \equiv \Delta MNP$

(citim triunghiul ABC este congruent cu triunghiul MNP)

$$\Delta ABC \equiv \Delta MNP \Rightarrow \begin{cases} [AB] \equiv [MN] \\ [AC] \equiv [MP] \\ [BC] \equiv [NP] \\ \hat{A} \equiv \hat{M} \\ \hat{B} \equiv \hat{N} \\ \hat{C} \equiv \hat{P} \end{cases}$$



Δ QRP = Δ ABC

∠A = P

∠ = Q

∠B = R

∠ =

∠C =

∠ =

AB = PQ

= QR

BC = PR

=

AC

=

Criteriile de congruenţă a triunghiurilor oarecare

Două triunghiuri se numesc congruente dacă au laturile şi unghiurile omoloage, respectiv congruente.

Două laturi
şi unghiul
cuprins între ele
LUL

sau

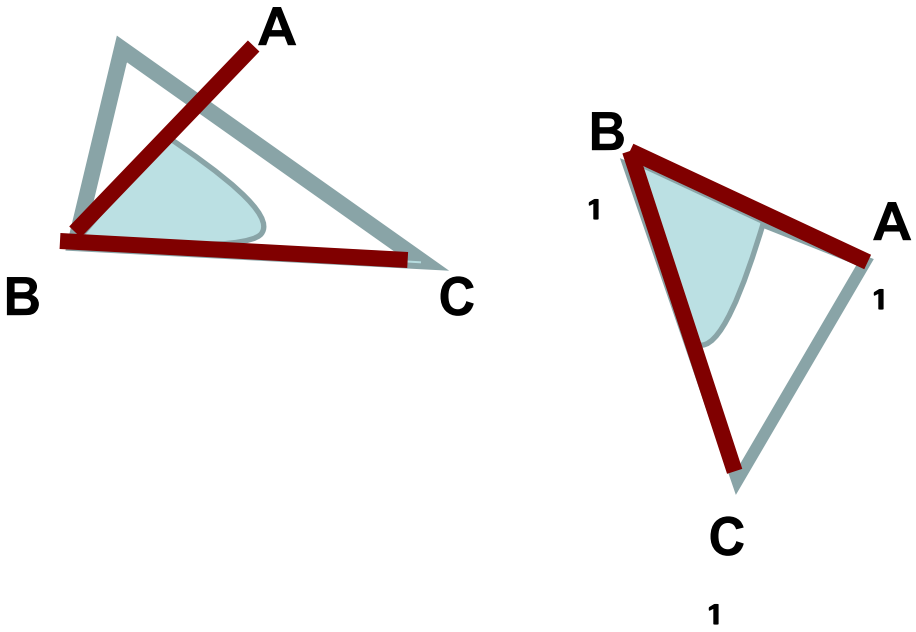
O latură
şi două unghiuri
alăturate
ULU

sau

Trei laturi
LLL

Criteriul LUL

Dacă două laturi şi unghiul determinat de ele dintr-un triunghi sunt congruente cu elementele corespunzătoare din alt triunghi, atunci cele 2 triunghiuri sunt congruente



Se dă:

ΔABC şi

$\Delta A_1B_1C_1$

$AB=A_1B_1$;

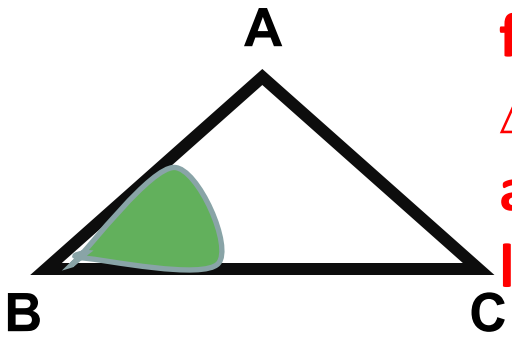
$BC=B_1C_1$;

$\angle B=\angle B_1$.

Dem-ţi, că

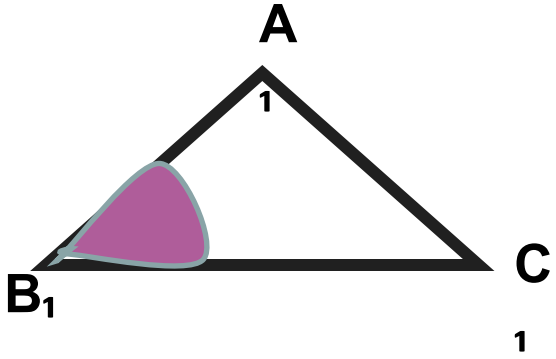
$\Delta ABC=\Delta A_1B_1C_1$

Demonstraţie:

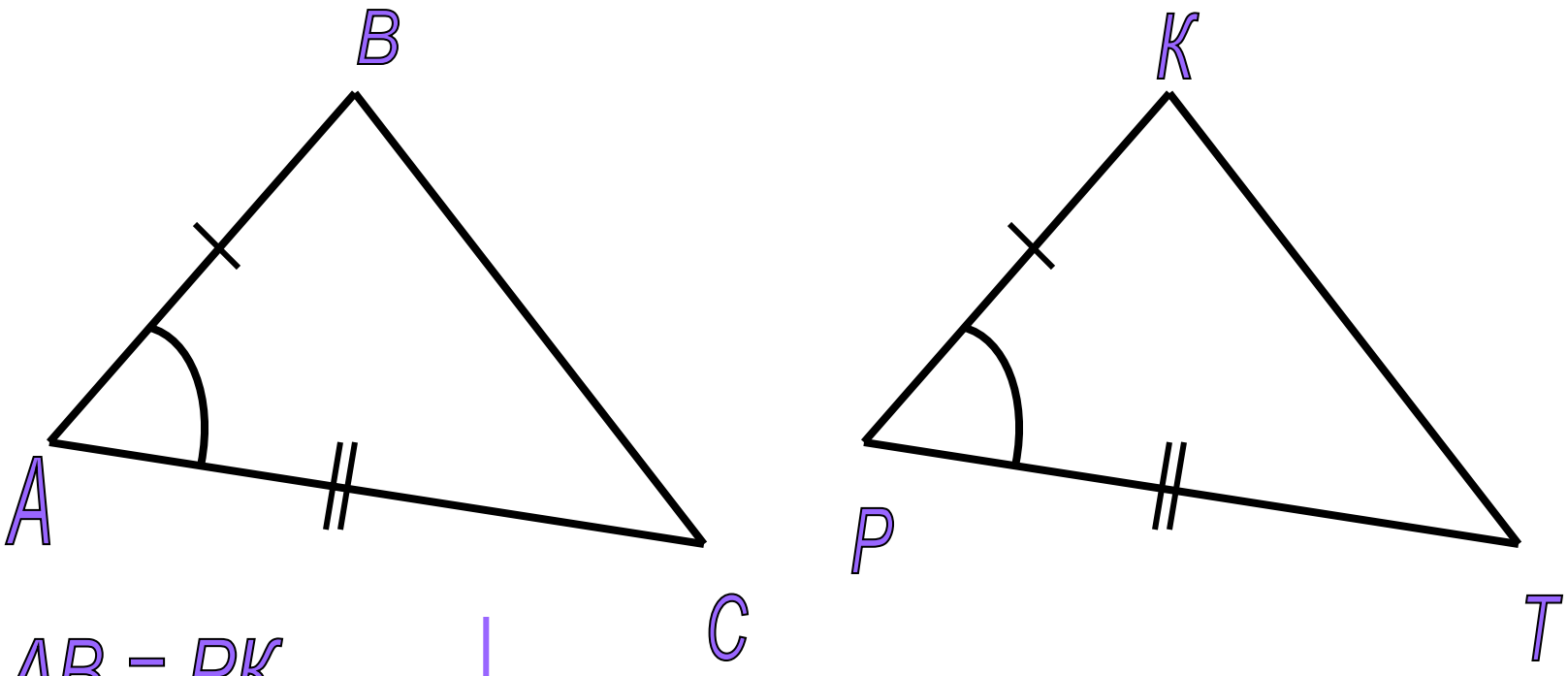


fiindcă $<B=<B_1$, atunci suprapunem ΔABC pe $\Delta A_1B_1C_1$. Fiindcă $AB=A_1B_1$, $BC=B_1C_1$, atunci aceste
laturi coincid.

În mod analog, laturile AC şi A_1C_1. Deci, ΔABC şi $\Delta A_1B_1C_1$ coincid, rezultă
că ele sînt congruente.



Dacă două laturi şi unghiul determinat de ele dintr-un triunghi sunt congruente cu elementele corespunzătoare din alt triunghi, atunci cele 2 triunghiuri sunt congruente



$AB = PK$

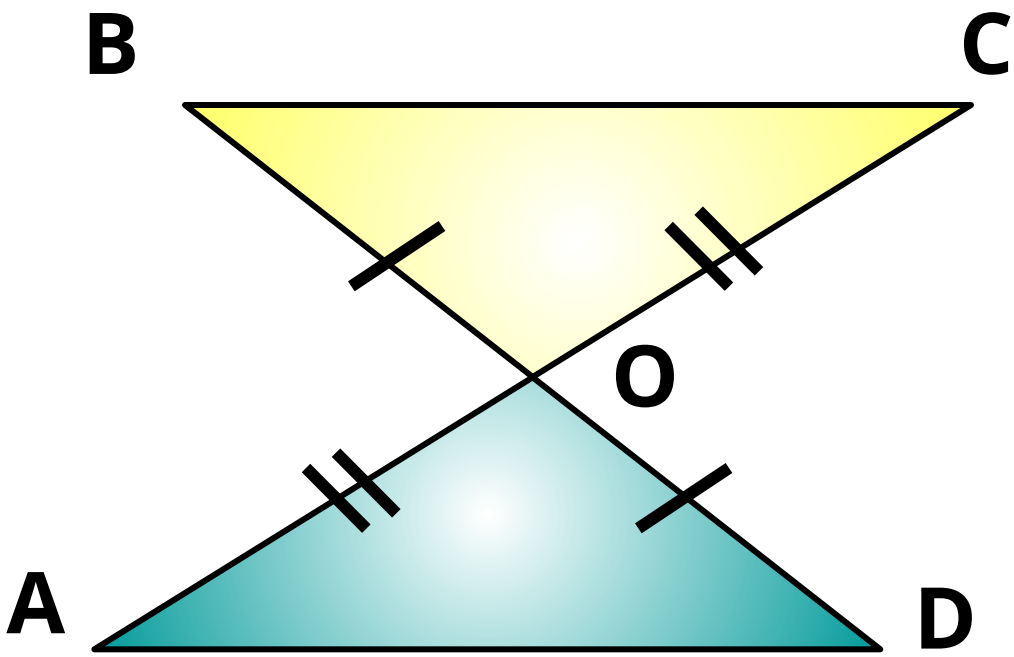
$AC = PT$

$\angle BAC = \angle KPT$

$\Rightarrow$

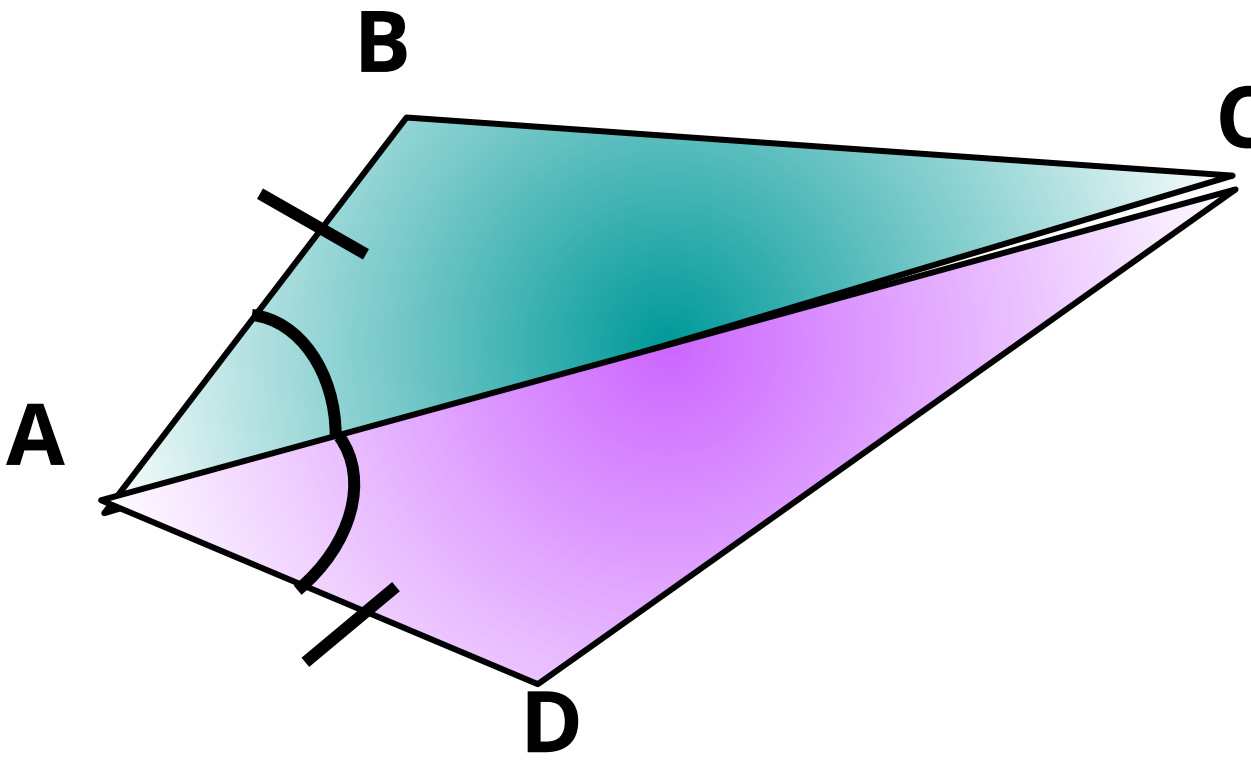
$\Delta BAC = \Delta KPT$

Ex.1



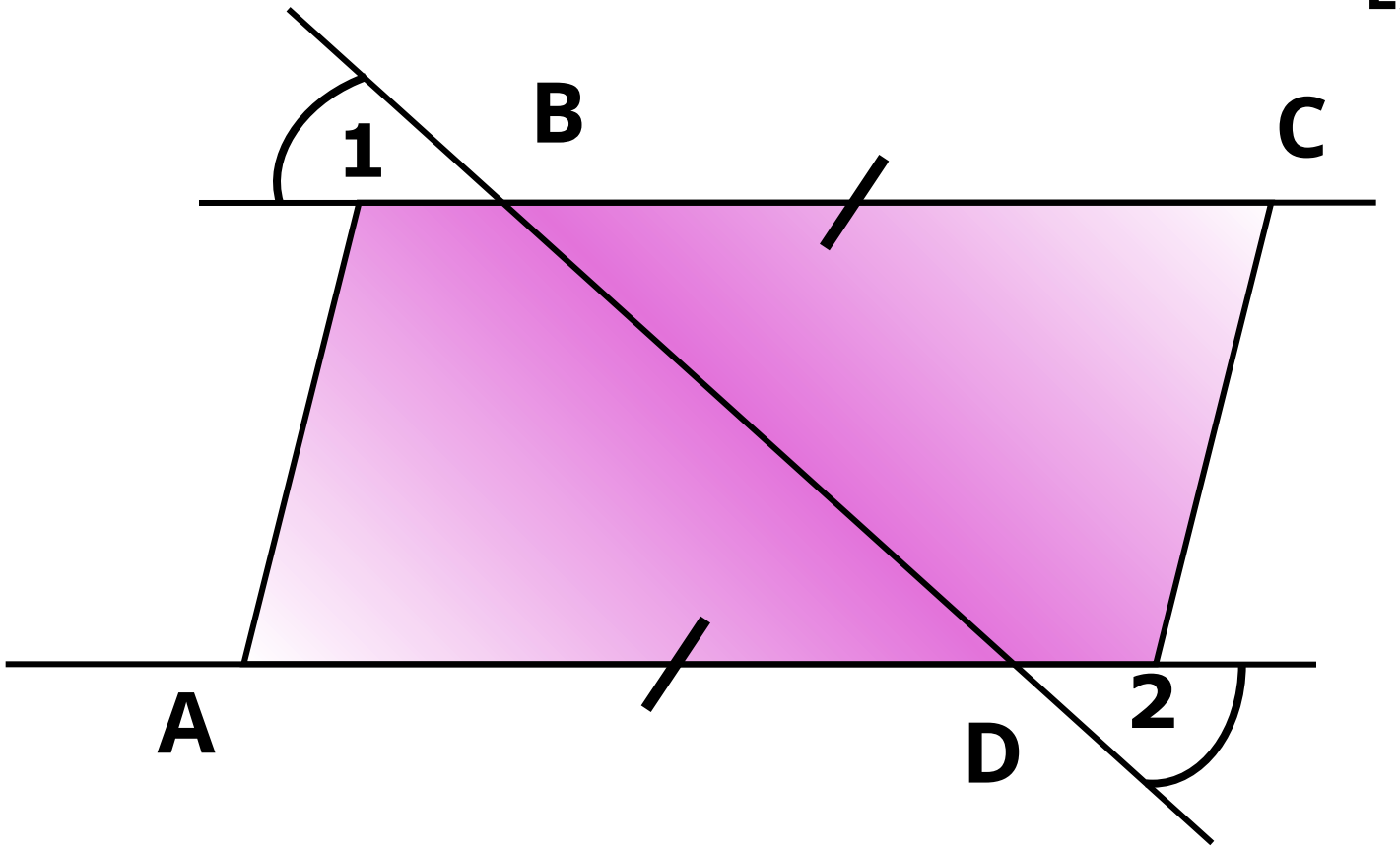
De demonstrat: Δ BOC=Δ AOD

Ex.2



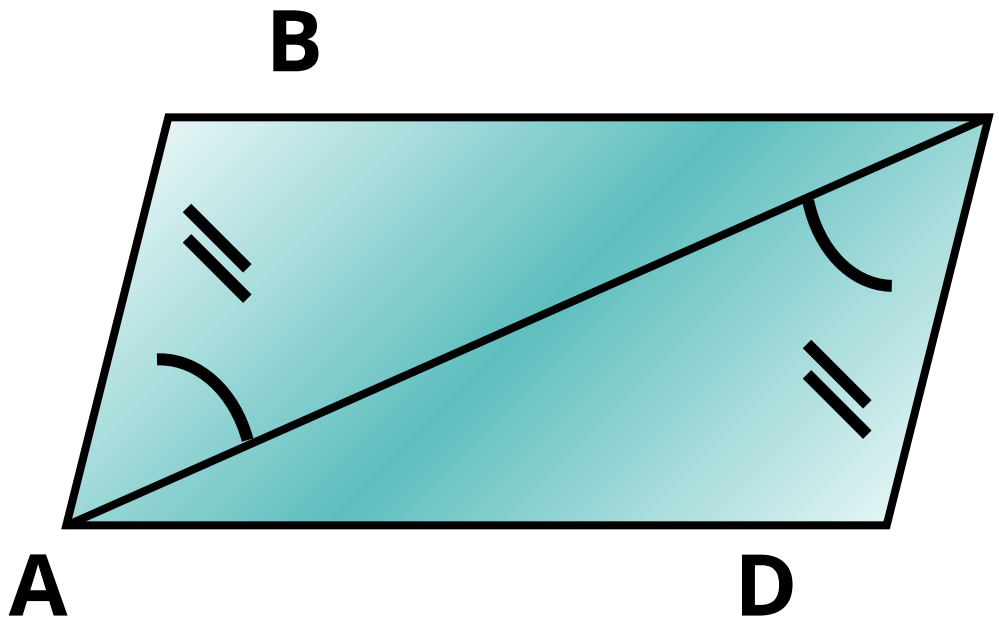
De demonstrat: Δ ABC=Δ ADC

Ex.3



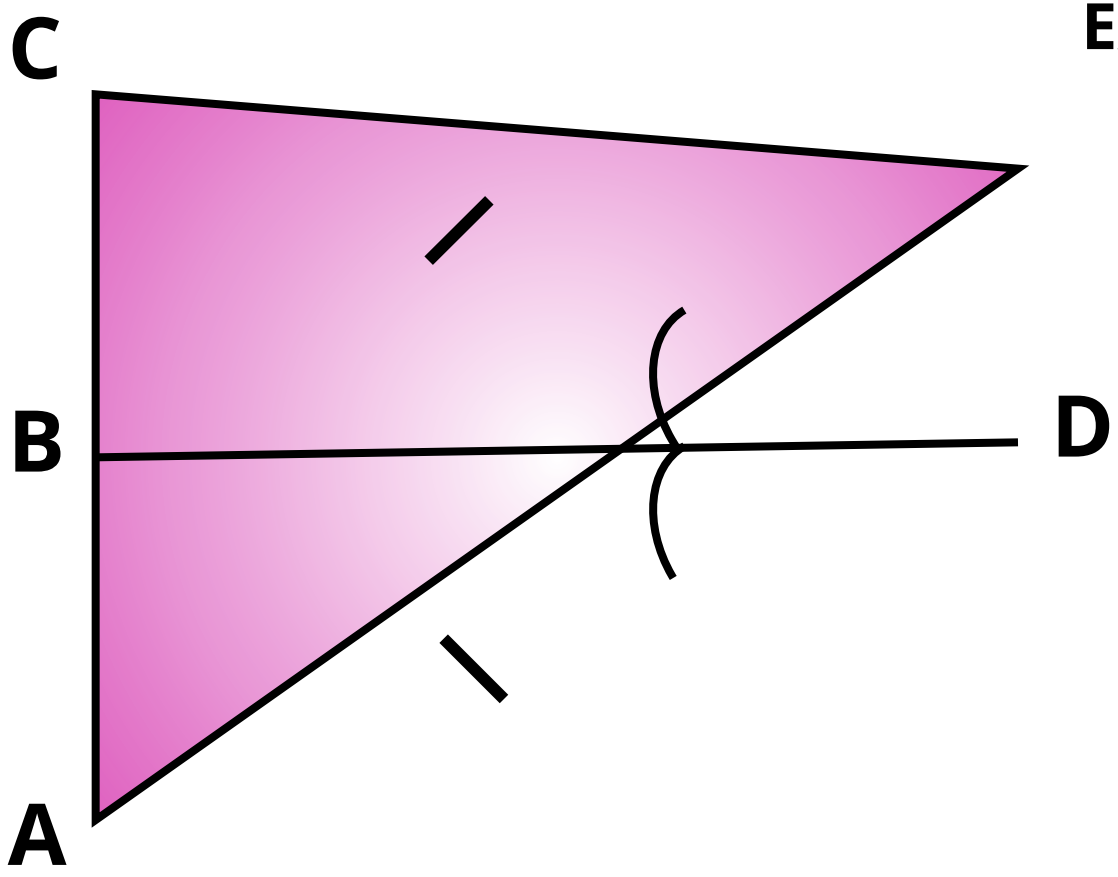
De demonstrat: Δ ABD=Δ BCD

Ex.4



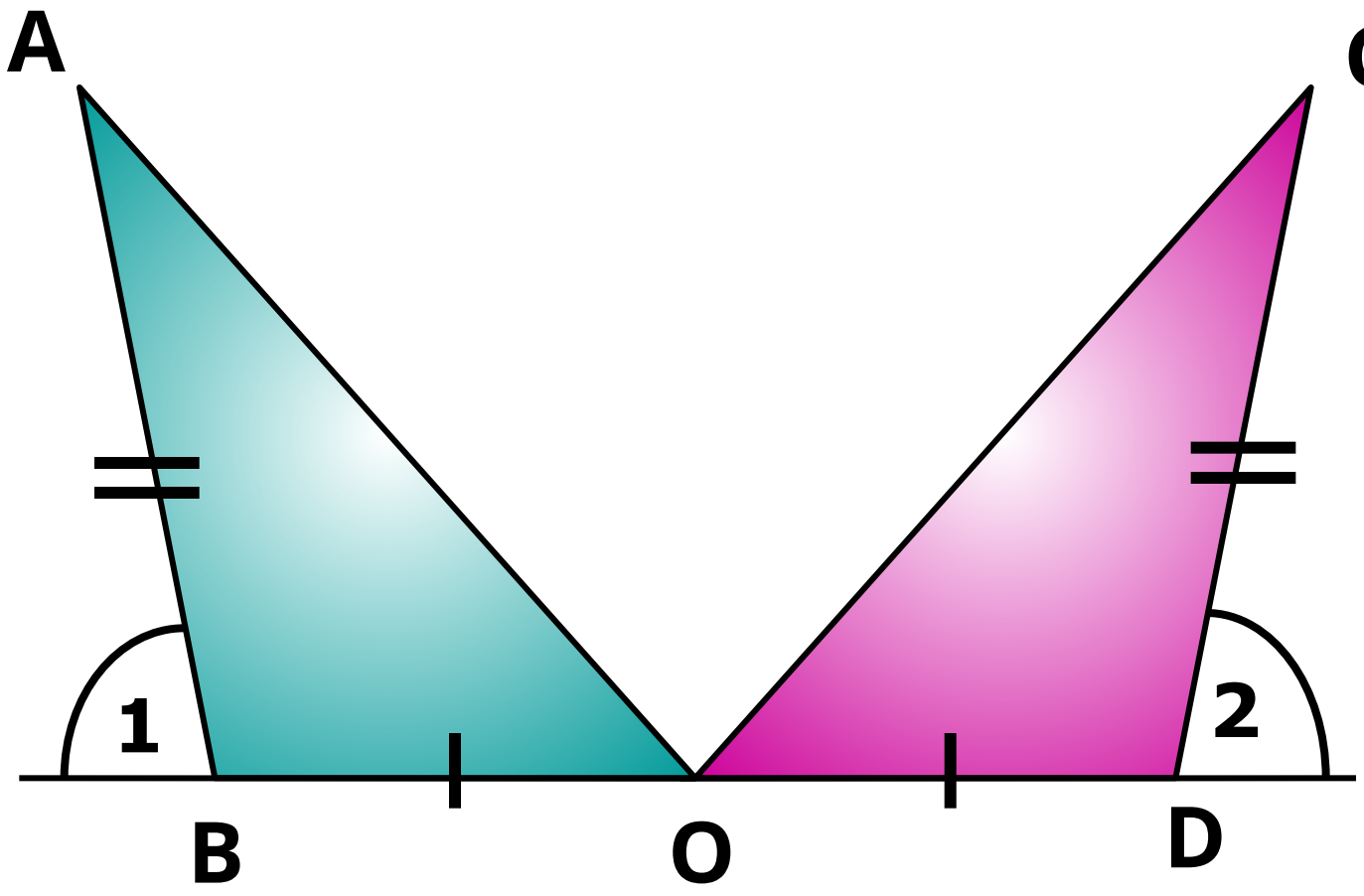
De demonstrat: $\angle D = \angle B$

Ex.5



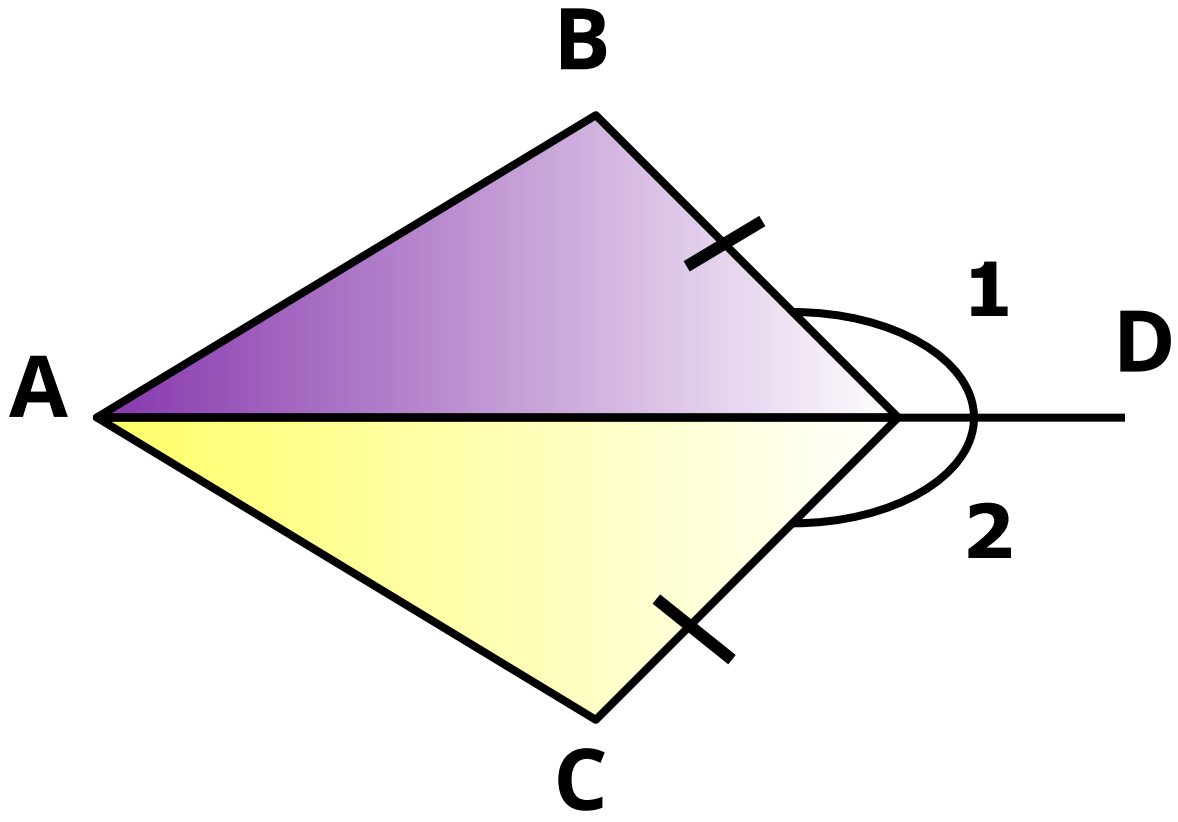
De demonstrat: AB=BC

Ex.6



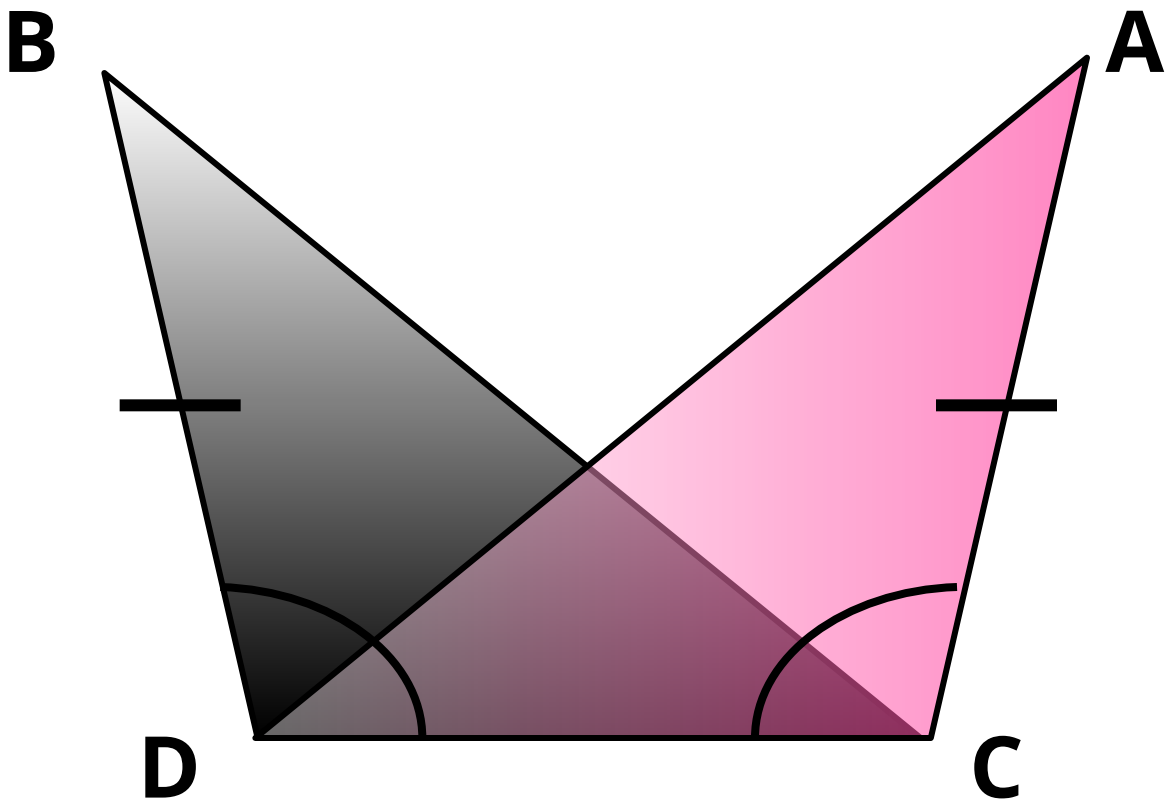
De demonstrat:
AO=CO

Ex.7



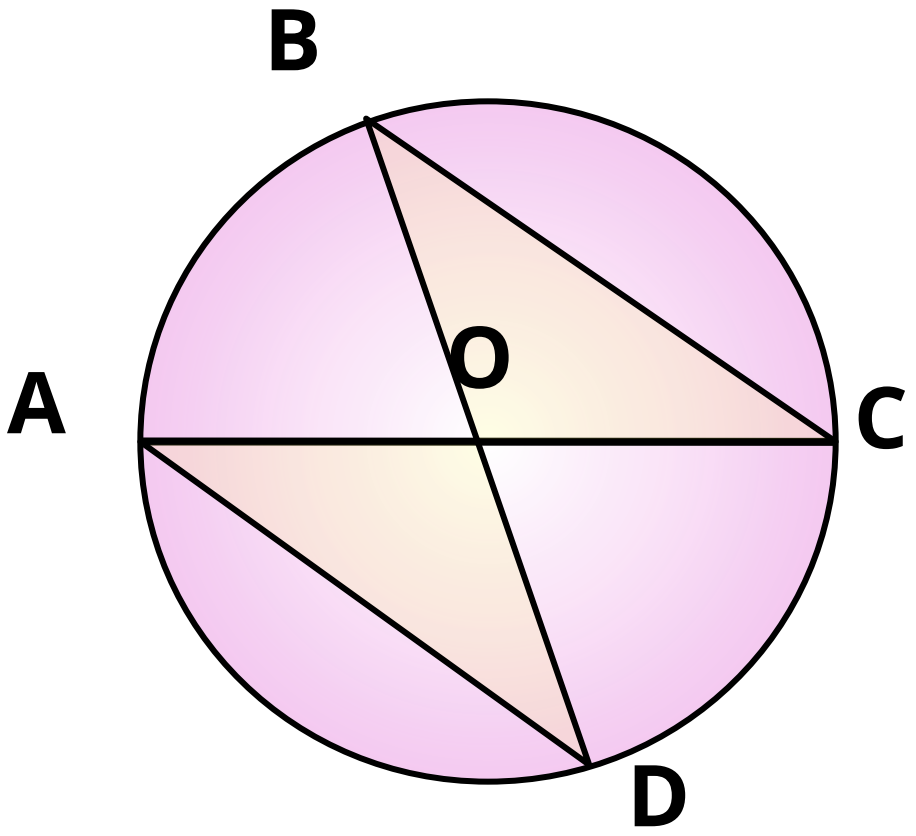
De demonstrat: AB=BC

Ex.8



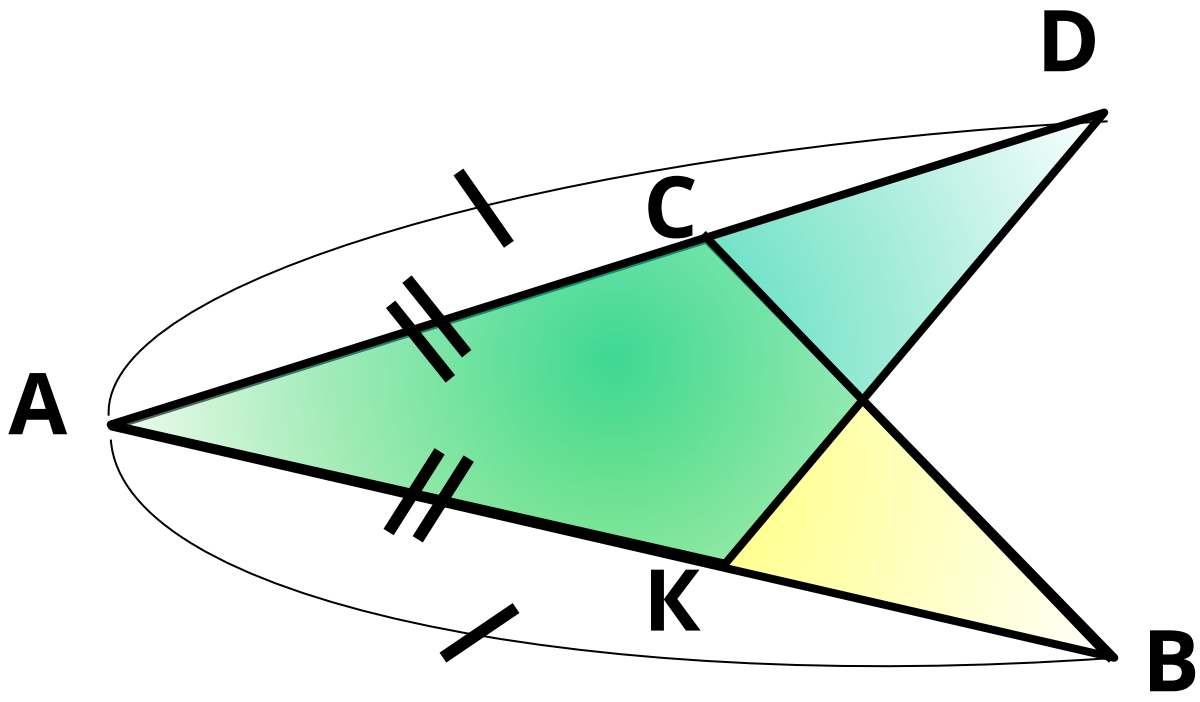
De demonstrat: Δ DBC=Δ DAC

Ex.9



De demonstrat: $\angle A = \angle B$

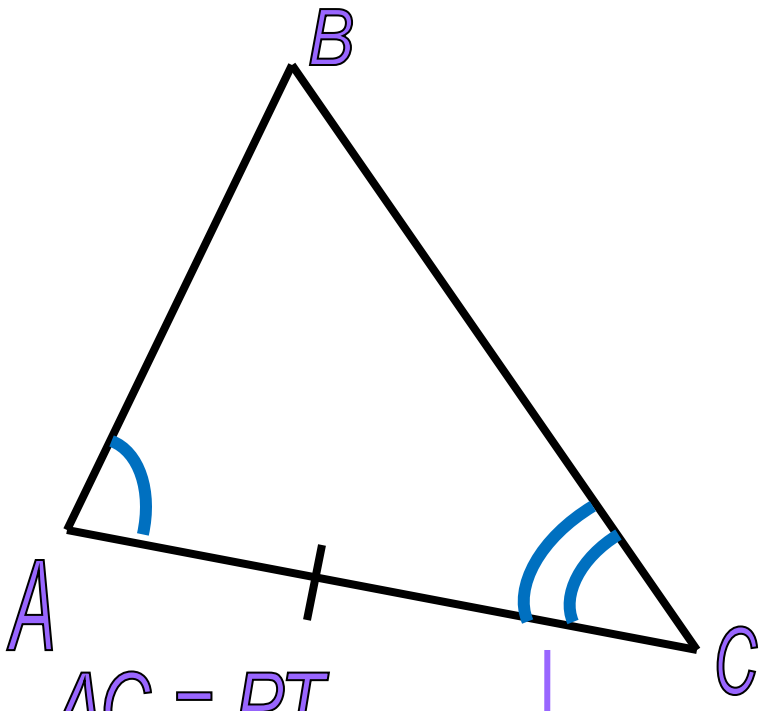
Ex.10

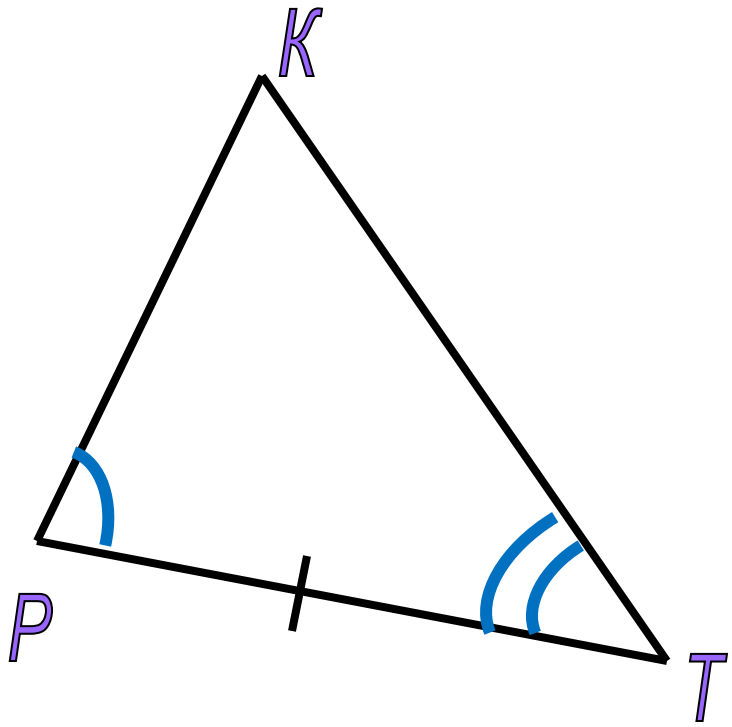


Găsiţi triunghiurile congruente

Criteriul ULU

Dacă o laturi și unghiurile alăturate ei dintr-un triunghi sunt congruente cu elementele corespunzătoare din alt triunghi, atunci cele 2 triunghiuri sunt congruente





$AC = PT$

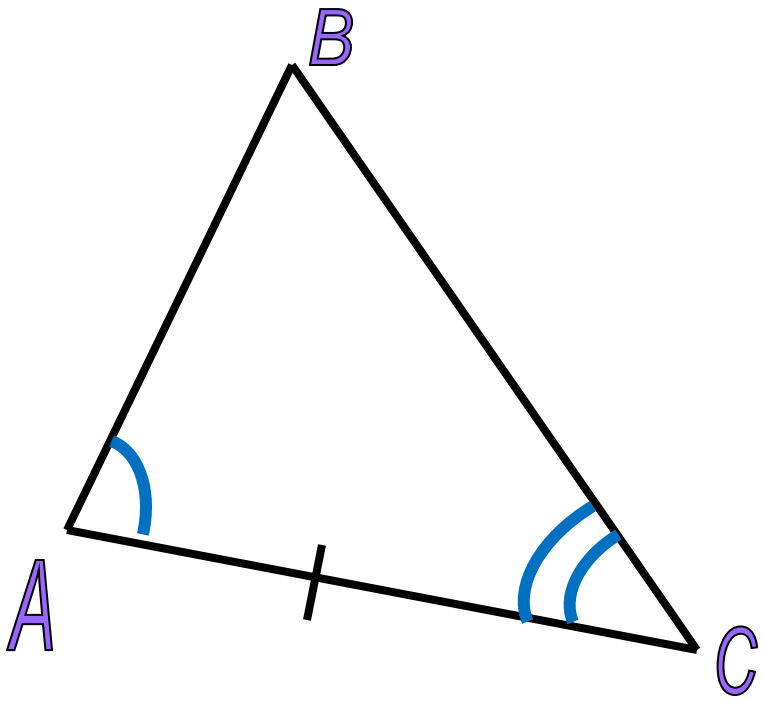
$\angle ACB = \angle PTK$

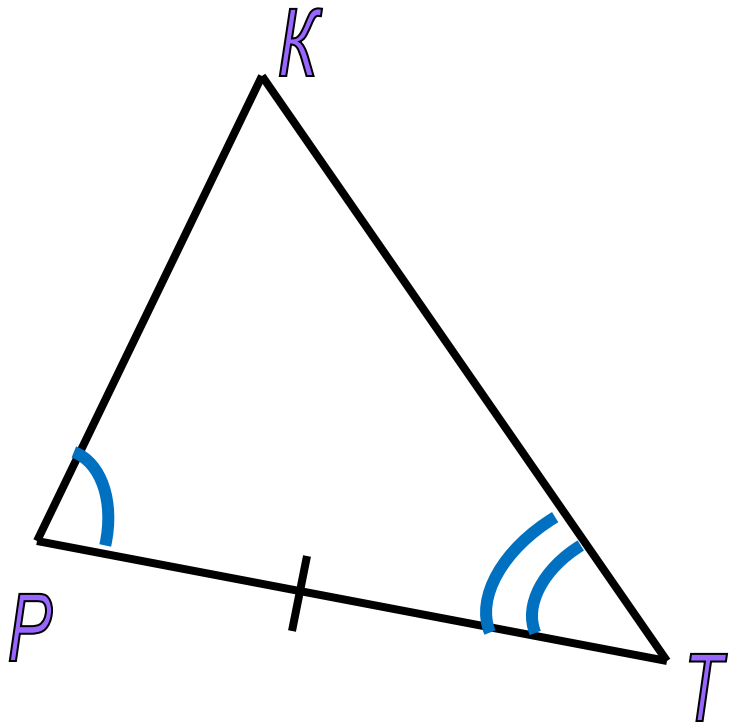
$\angle BAC = \angle KPT$

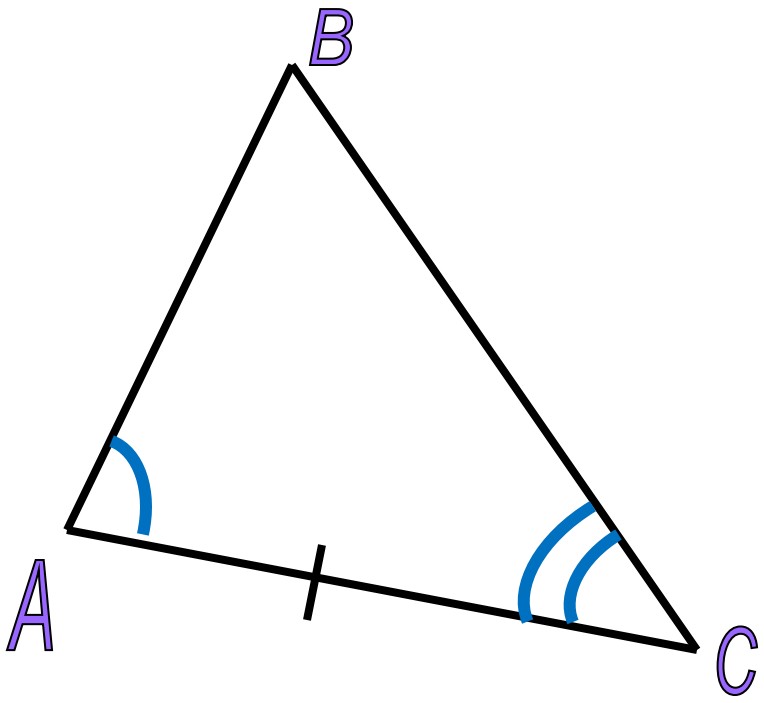
$\Rightarrow$

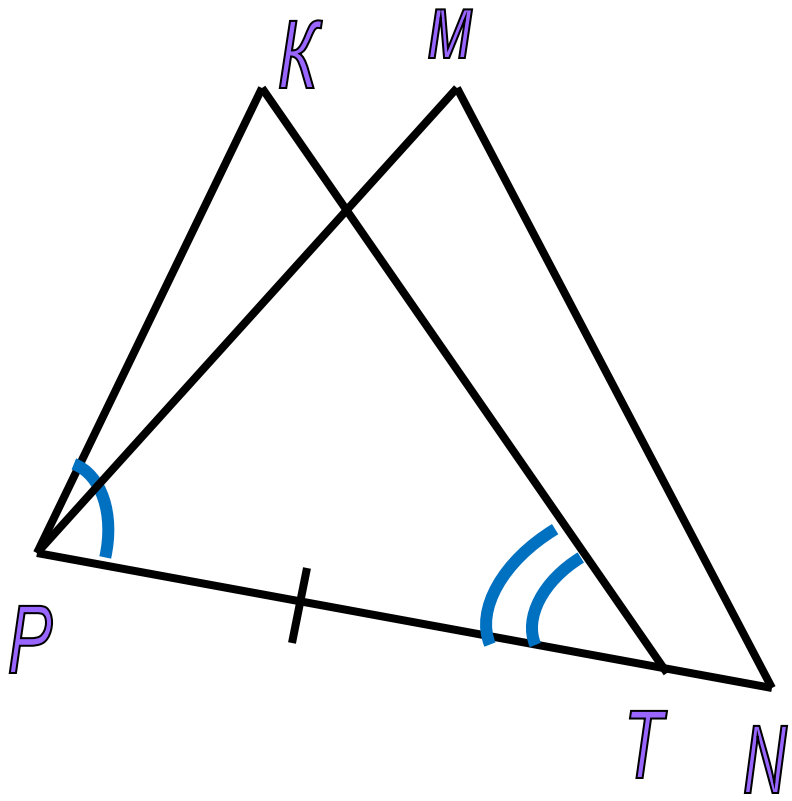
$\Delta BAC = \Delta KPT$

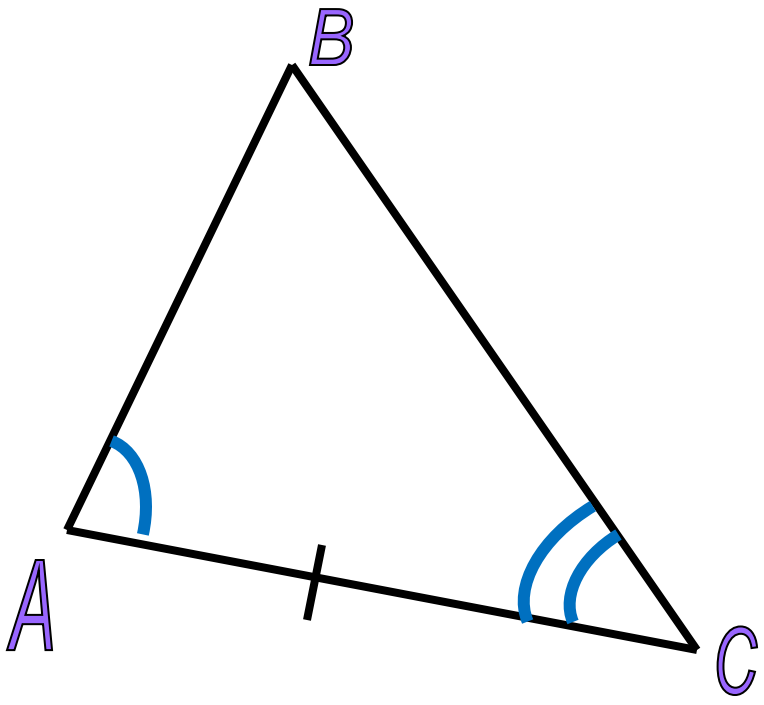
Demonstraţie

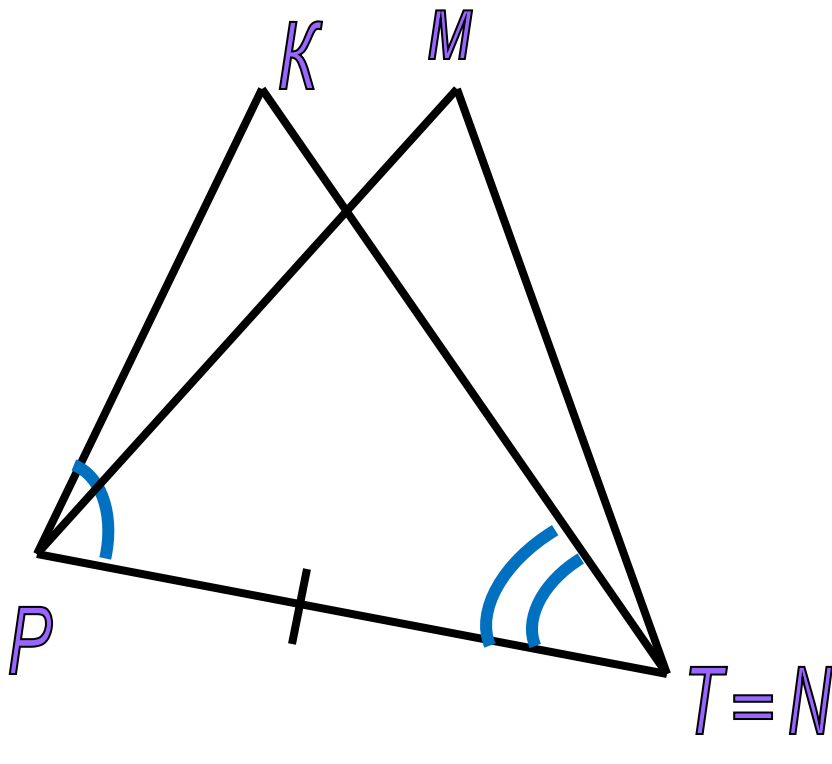


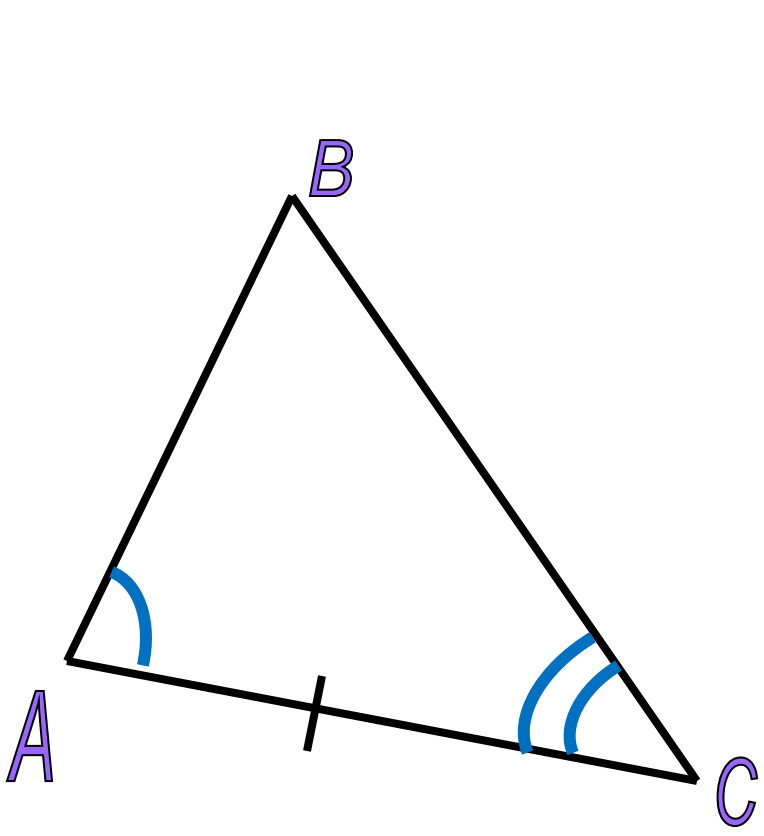


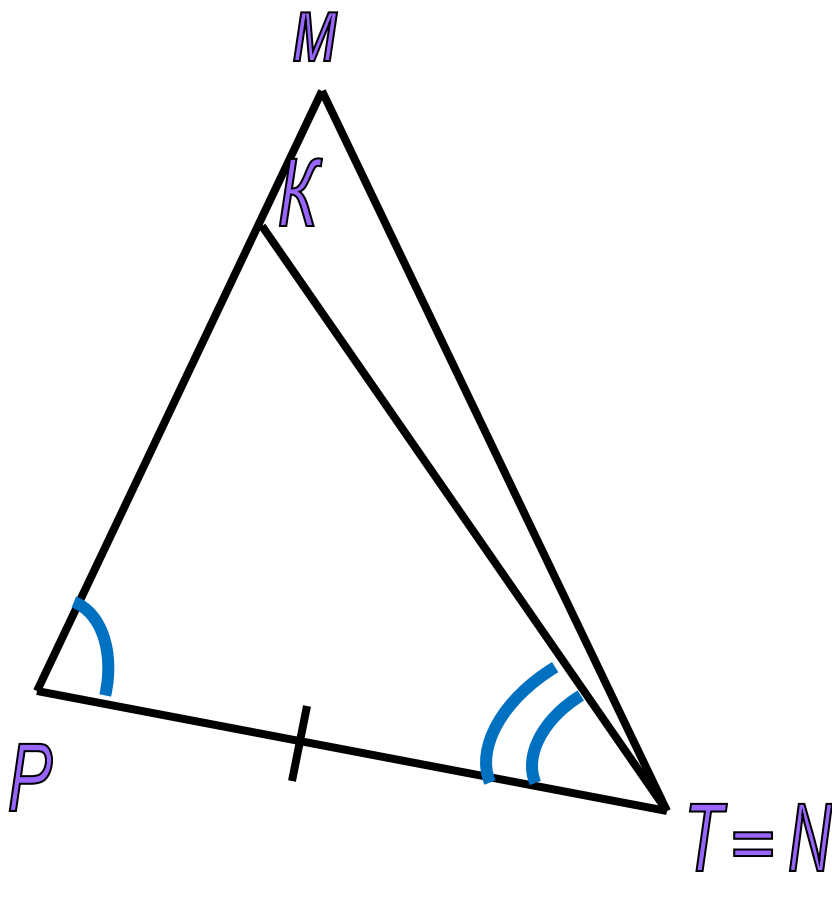

B
A
C

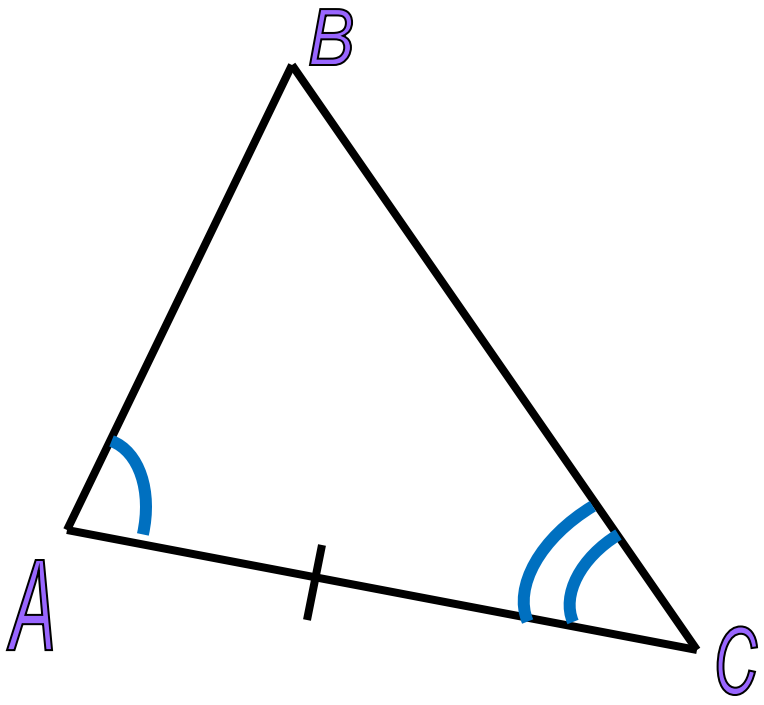

K
M
P
T
N

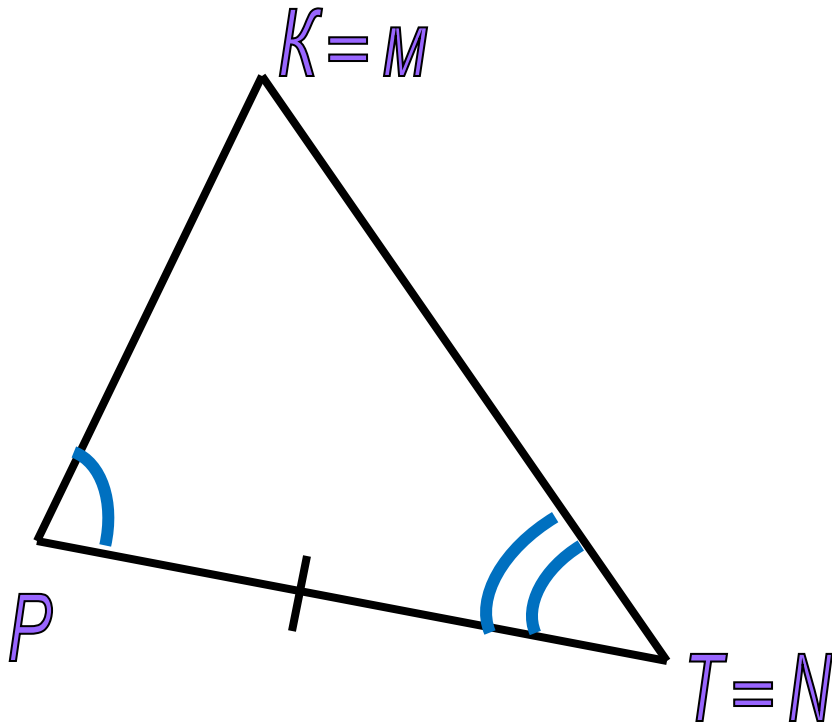

B
A
C


K
M
P
T=N

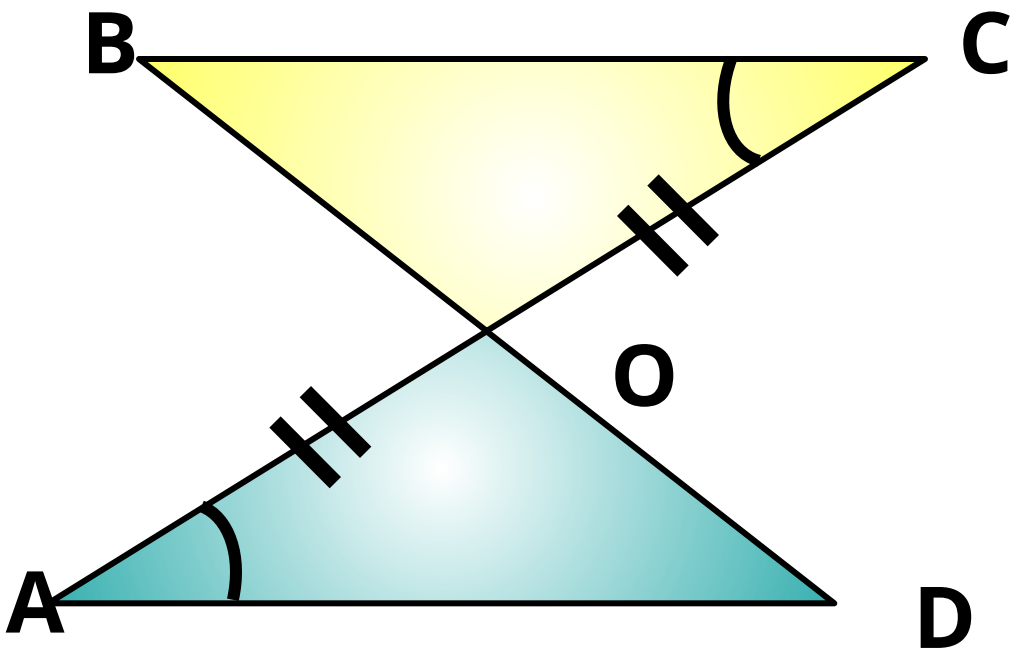

B
A
C


M
K
P
T=N


B
A
C

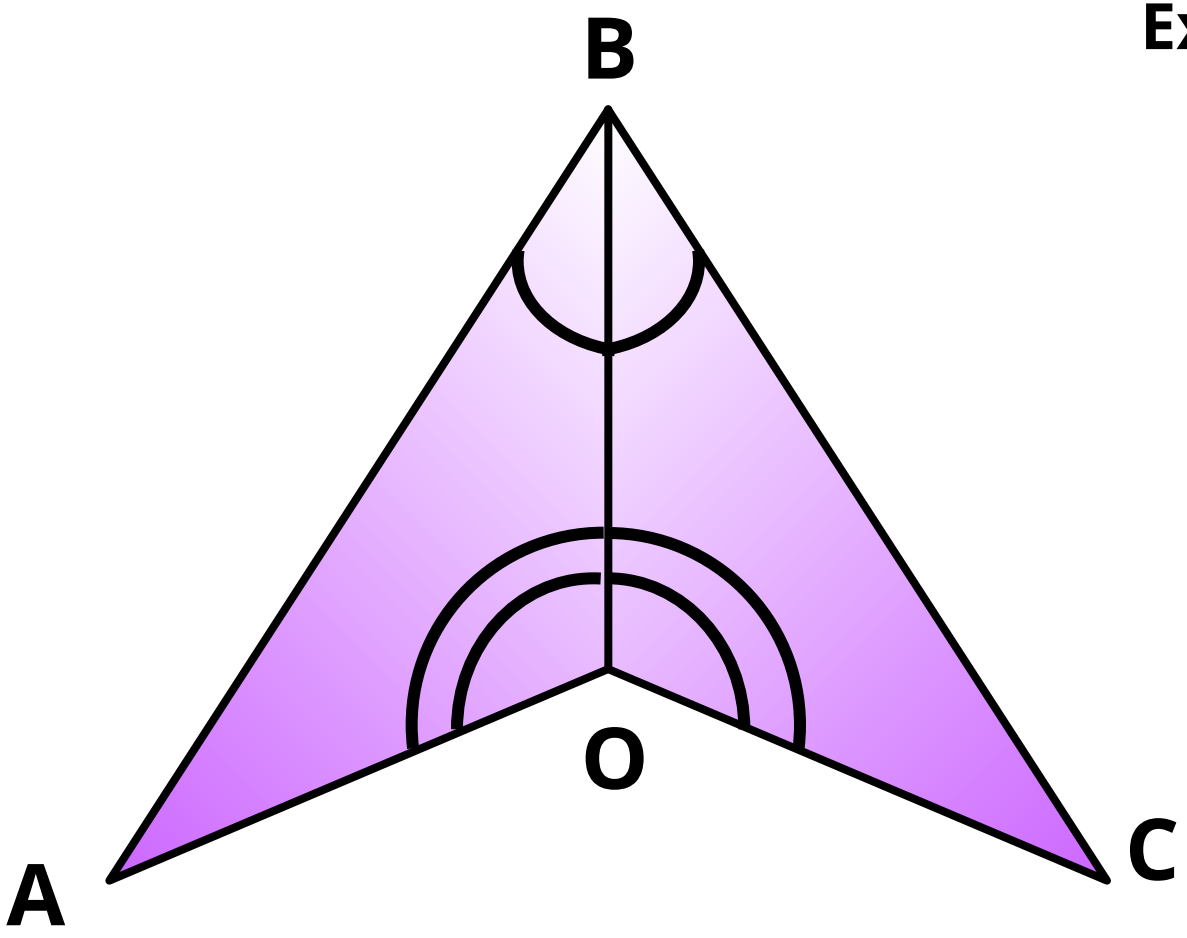

K = M
P
T = N

Ex.1



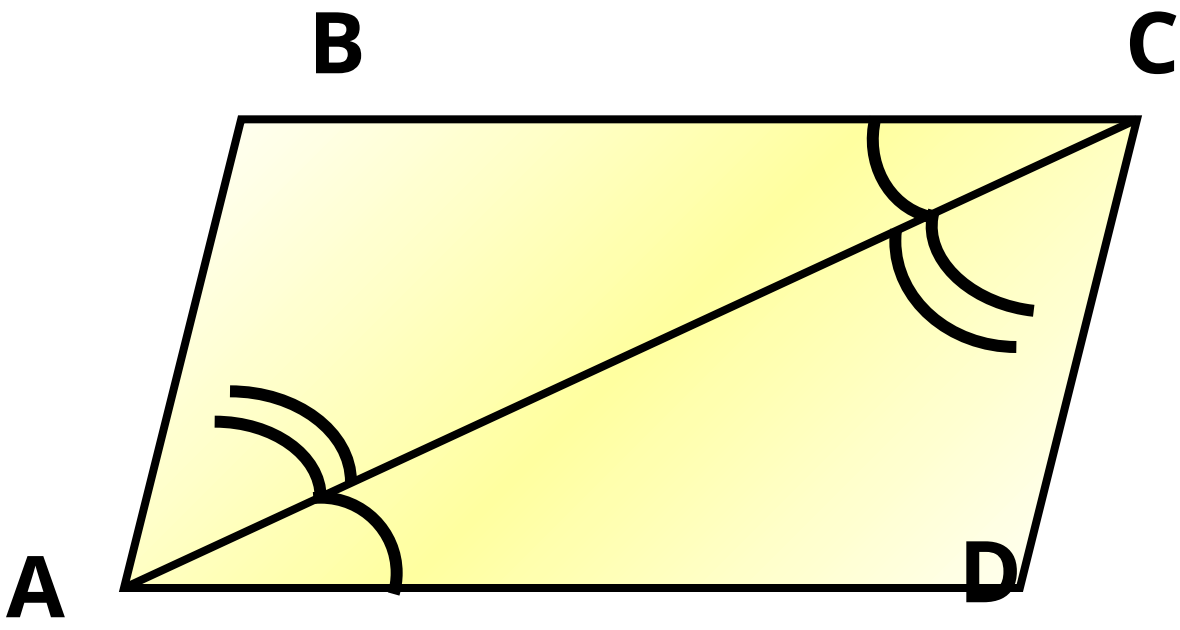
De demonstrat: $\angle D = \angle B$

Ex.2



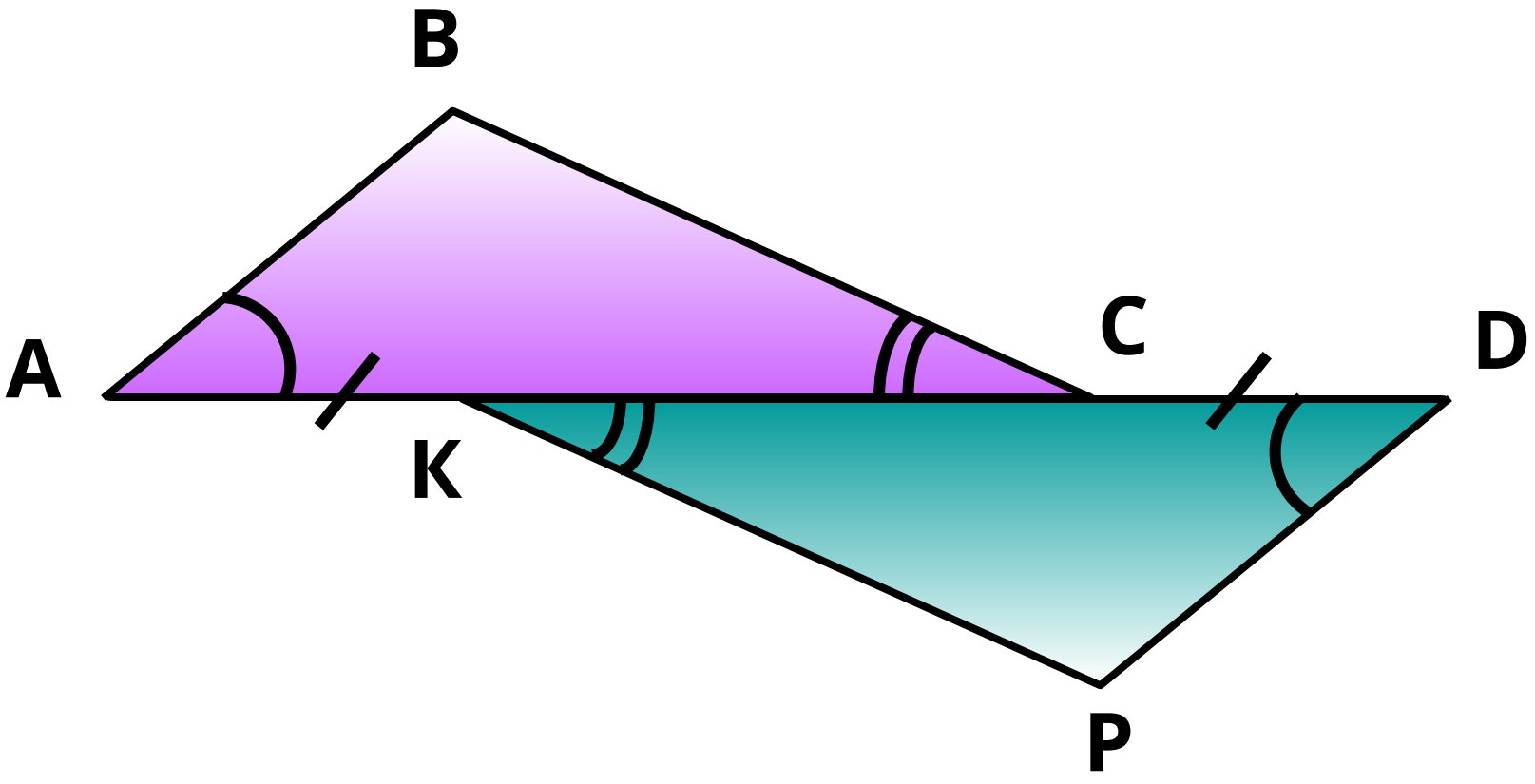
De demonstrat:
AO=CO

Ex.3



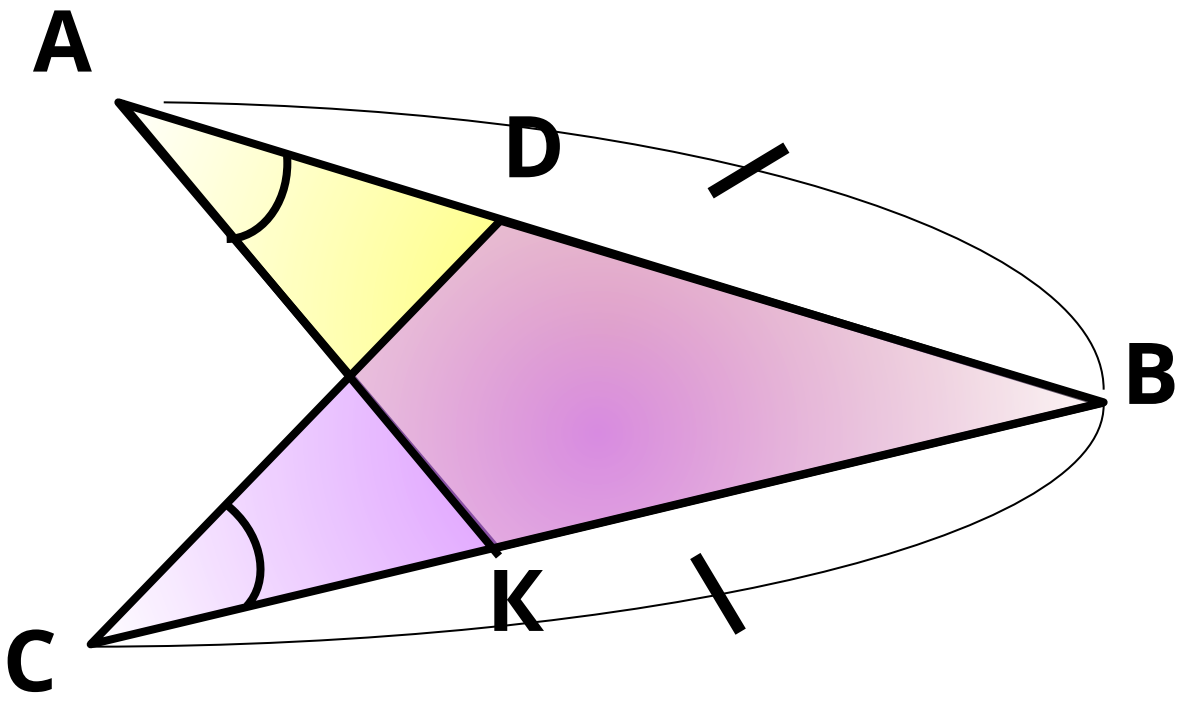
De demonstrat:
AB=CD

Ex.4



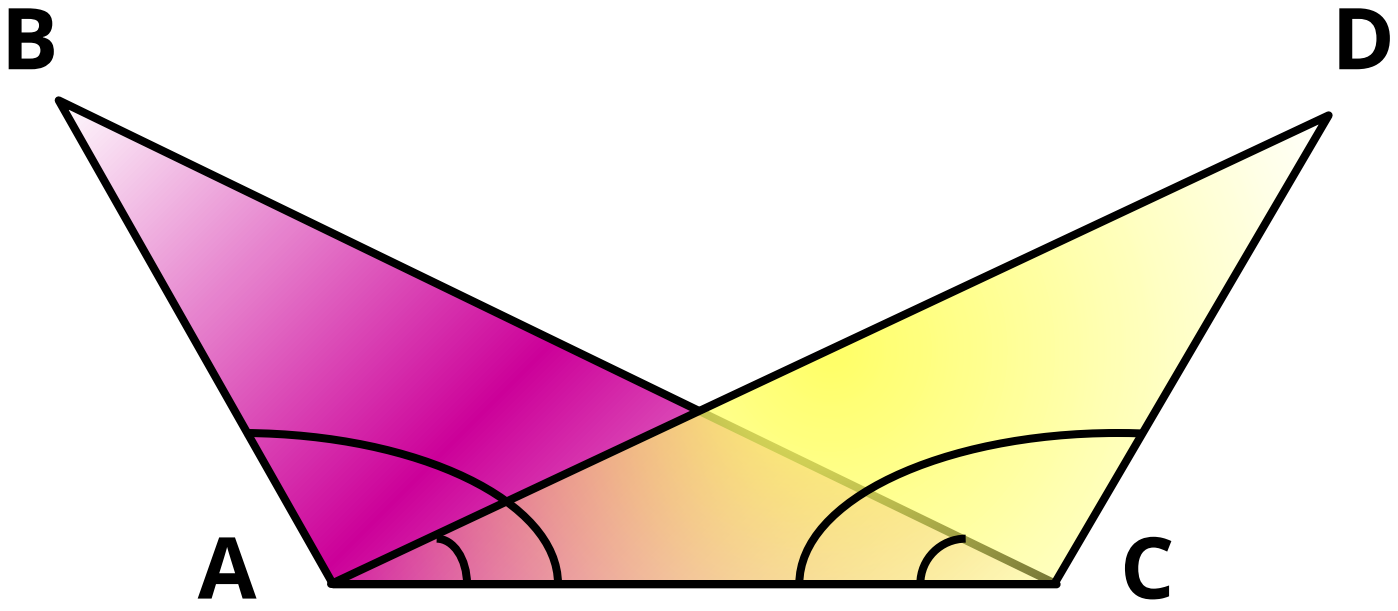
De demonstrat: $\angle P = \angle B$

Ex.5



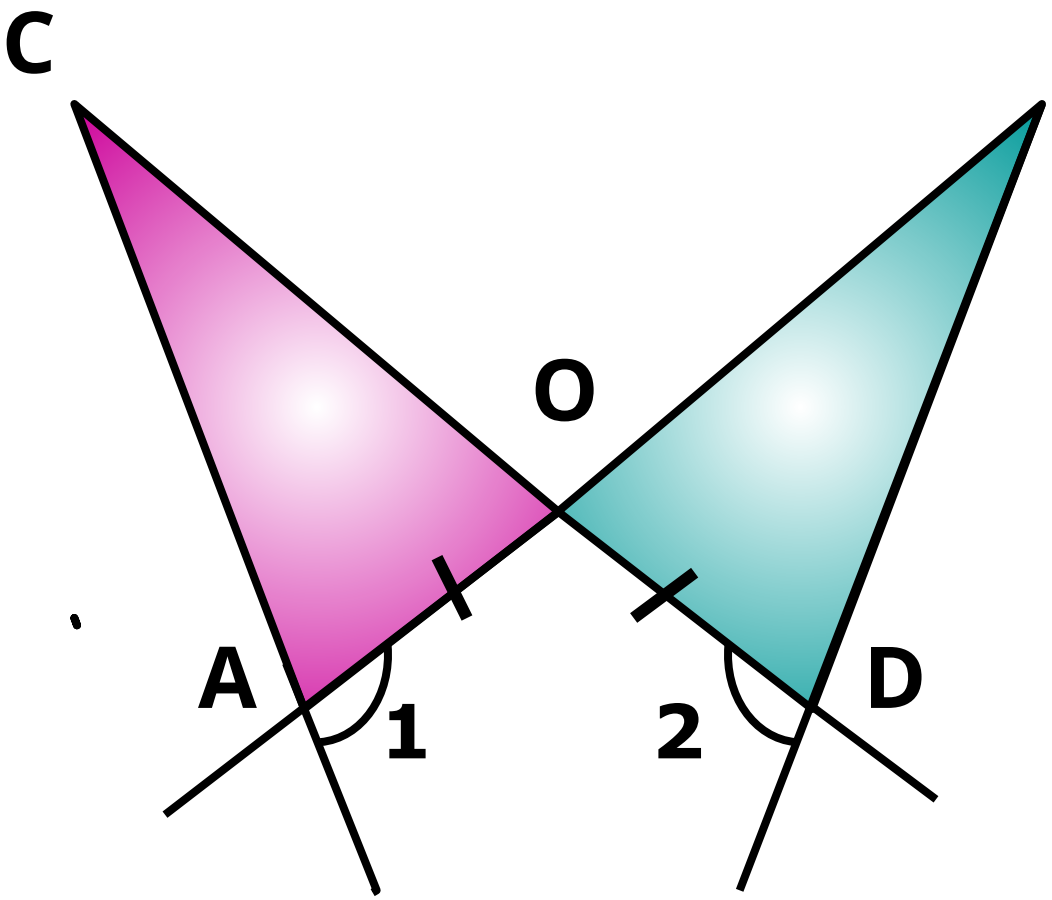
Găsiţi triunghiurile congruente

Ex.6



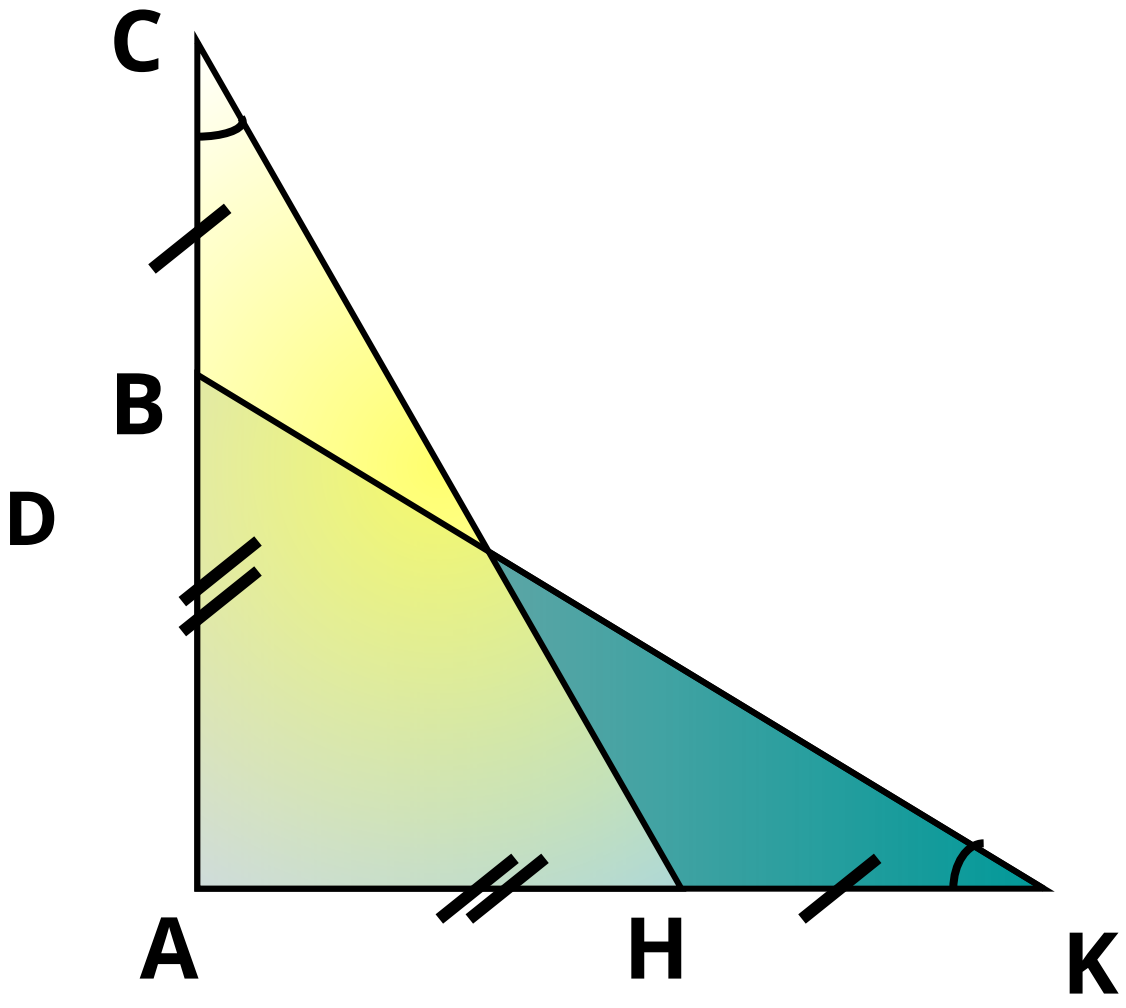
De demonstrat:
AB=CD

Ex.7



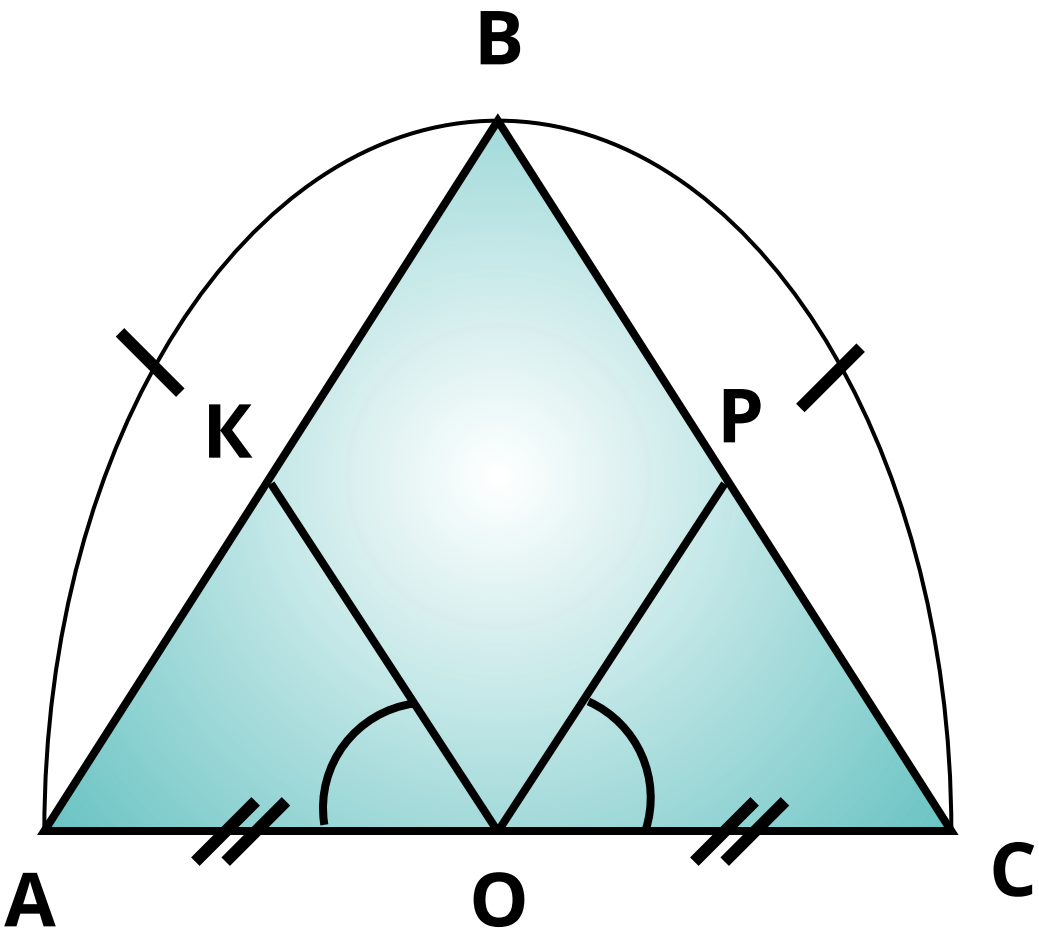
De demonstrat: $\angle C = \angle B$

Ex.8



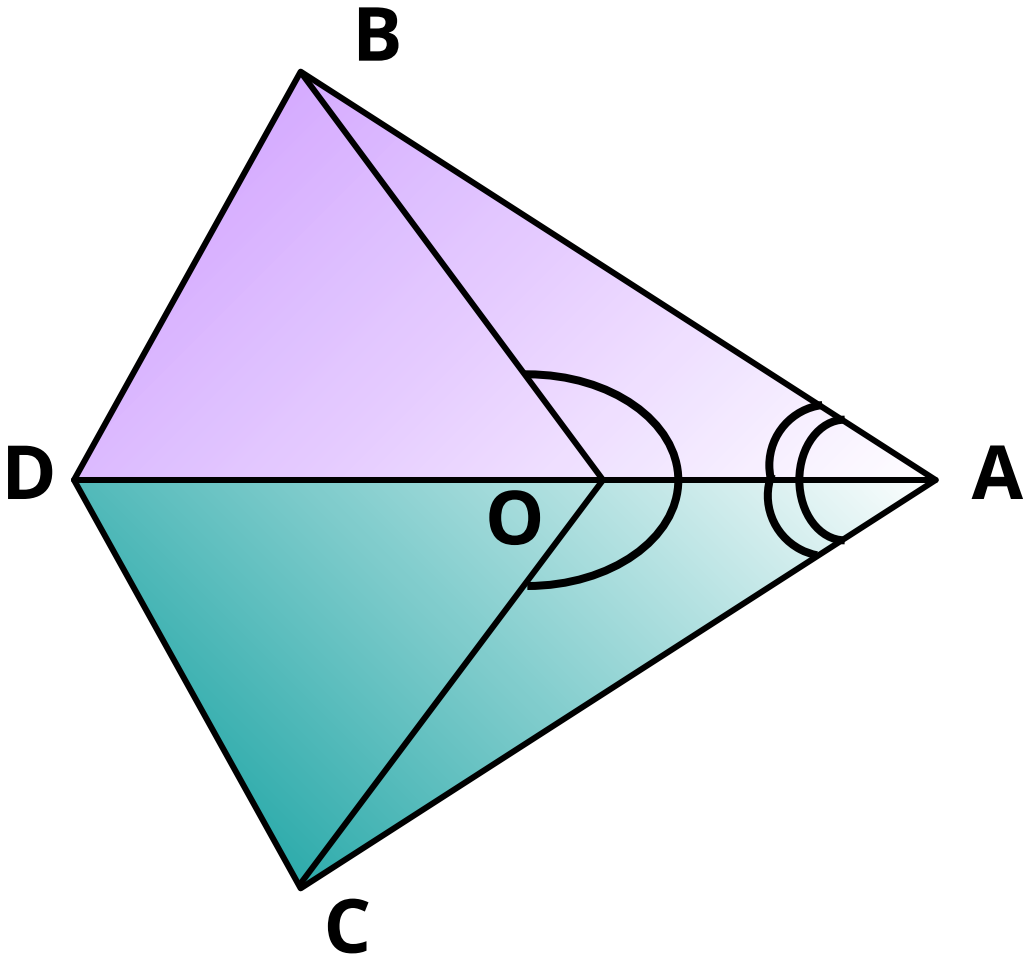
Găsiţi triunghiurile congruente

Ex.9



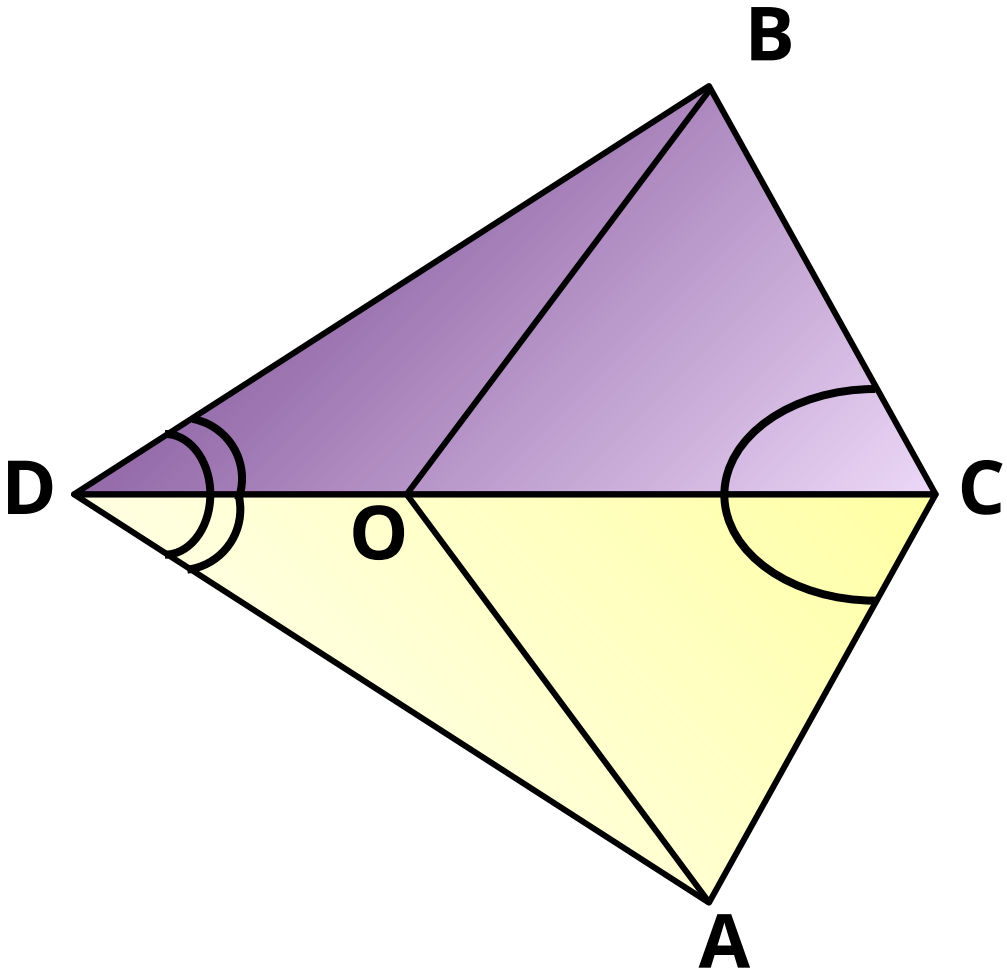
De demonstrat:
AK=CP

Ex.10



Găsiţi triunghiurile congruente

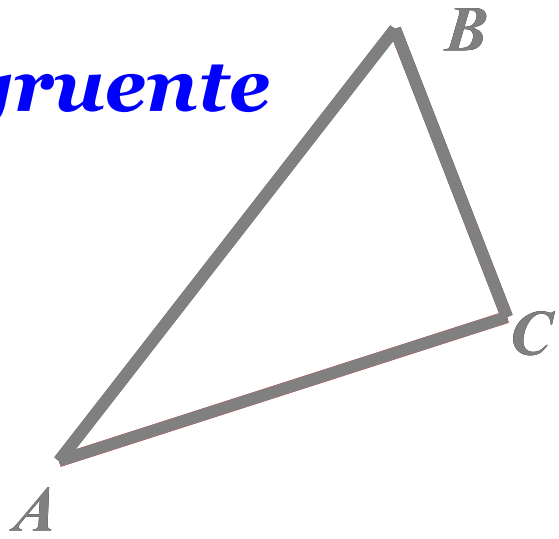
Ex.11

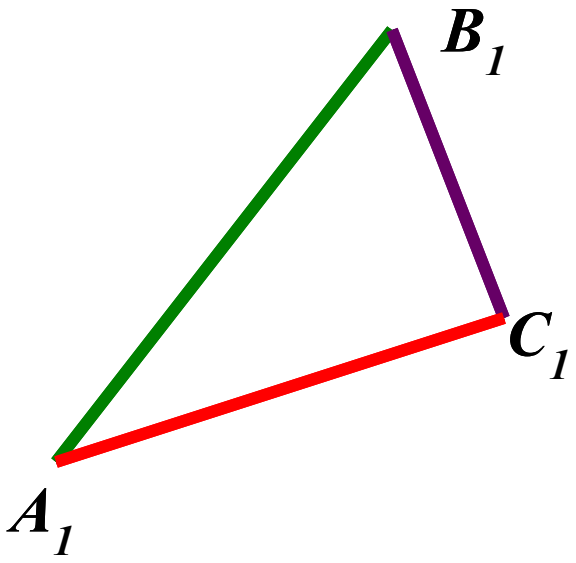


Găsiţi triunghiurile congruente

Criteriul LLL

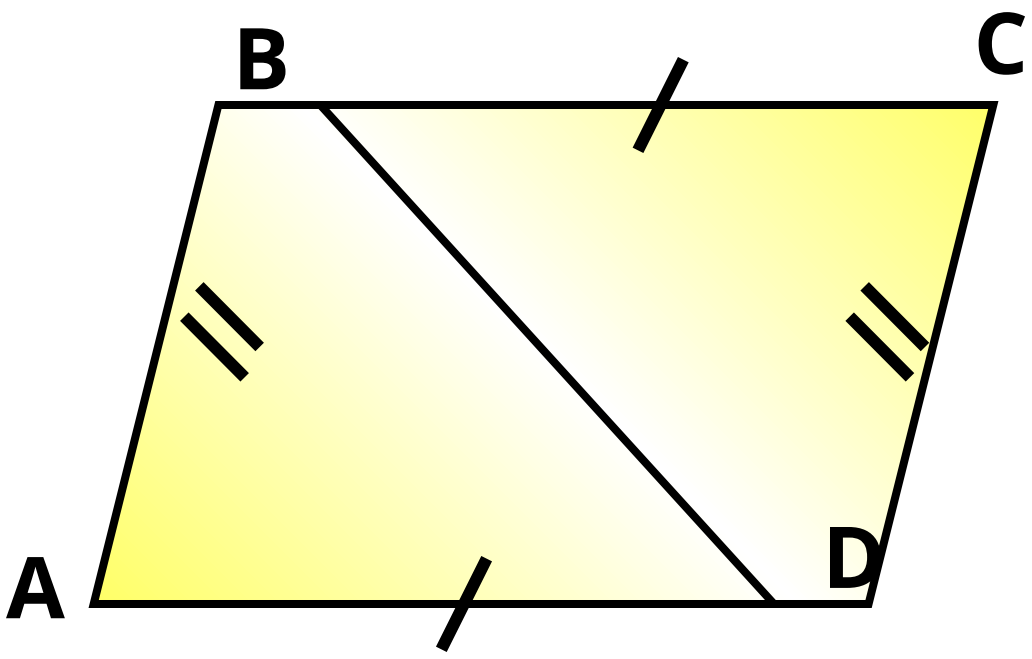
Dacă cele trei laturi dintr-un triunghi sunt congruente cu laturile corespunzătoare lor din alt triunghi, atunci cele 2 triunghiuri sunt congruente





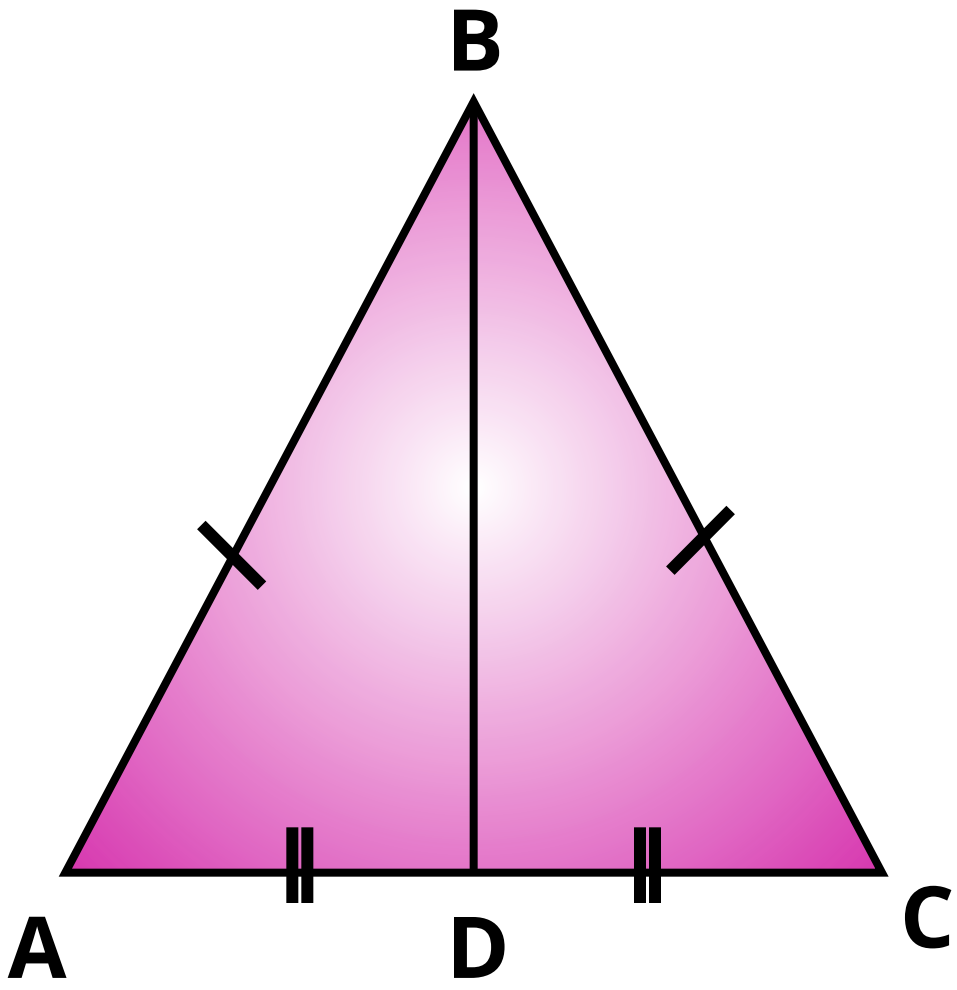
Dacă $AB=A_1B_1$,
$AC=A_1C_1$, $BC=B_1C_1$,
atunci $\triangle ABC= \triangle A_1B_1C_1$

Ex.1



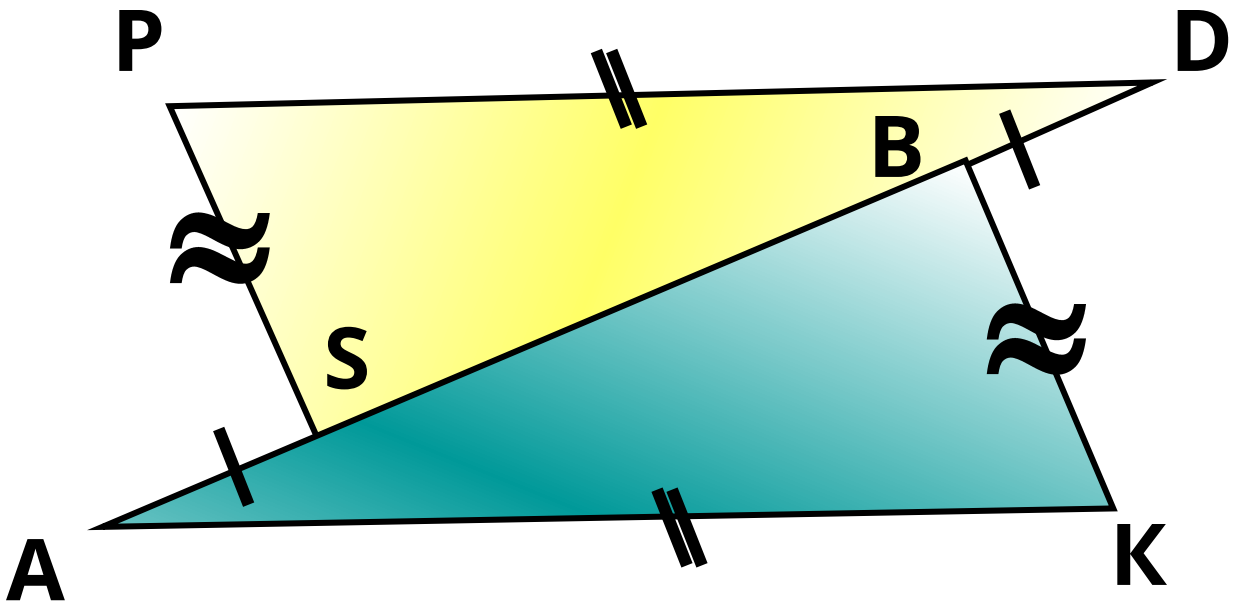
De demonstrat: $\angle D = \angle B$

Ex.2



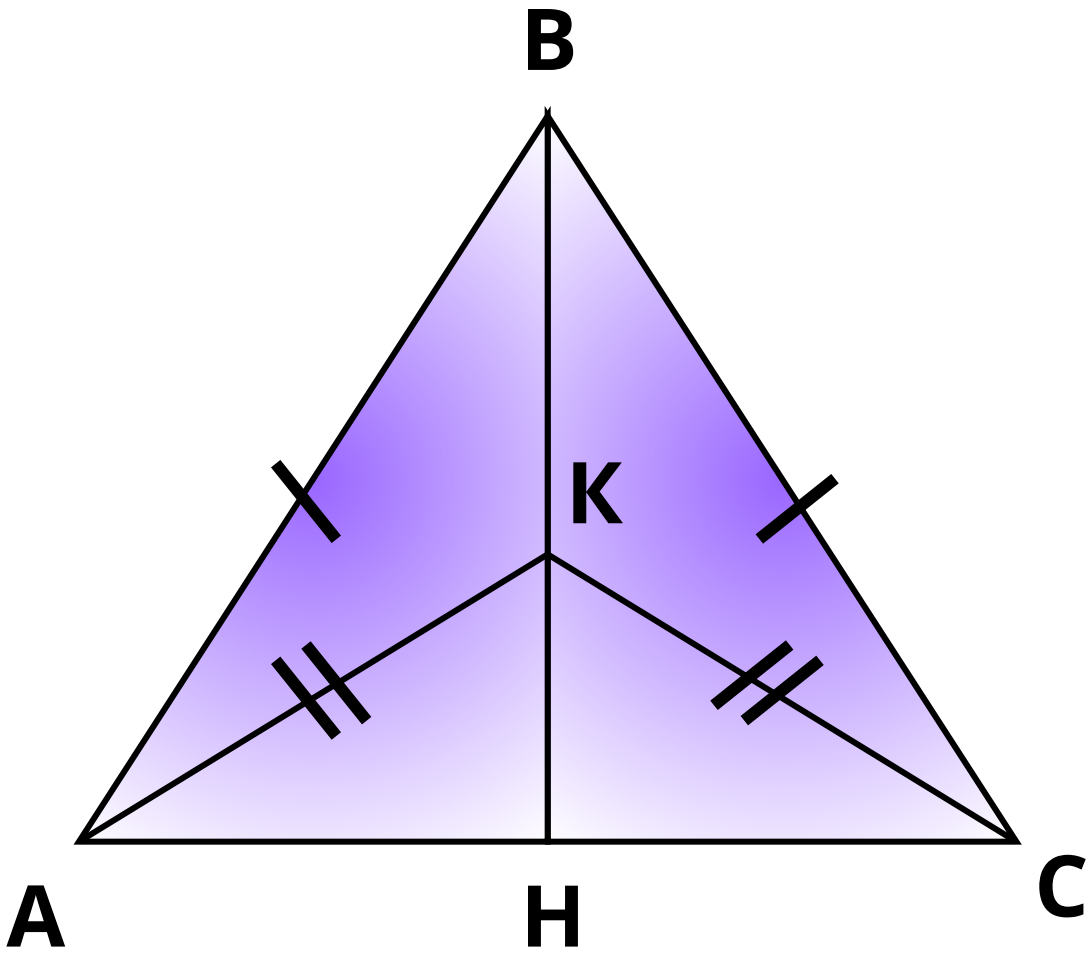
De demonstrat: Δ ABD=Δ BCD

Ex.3



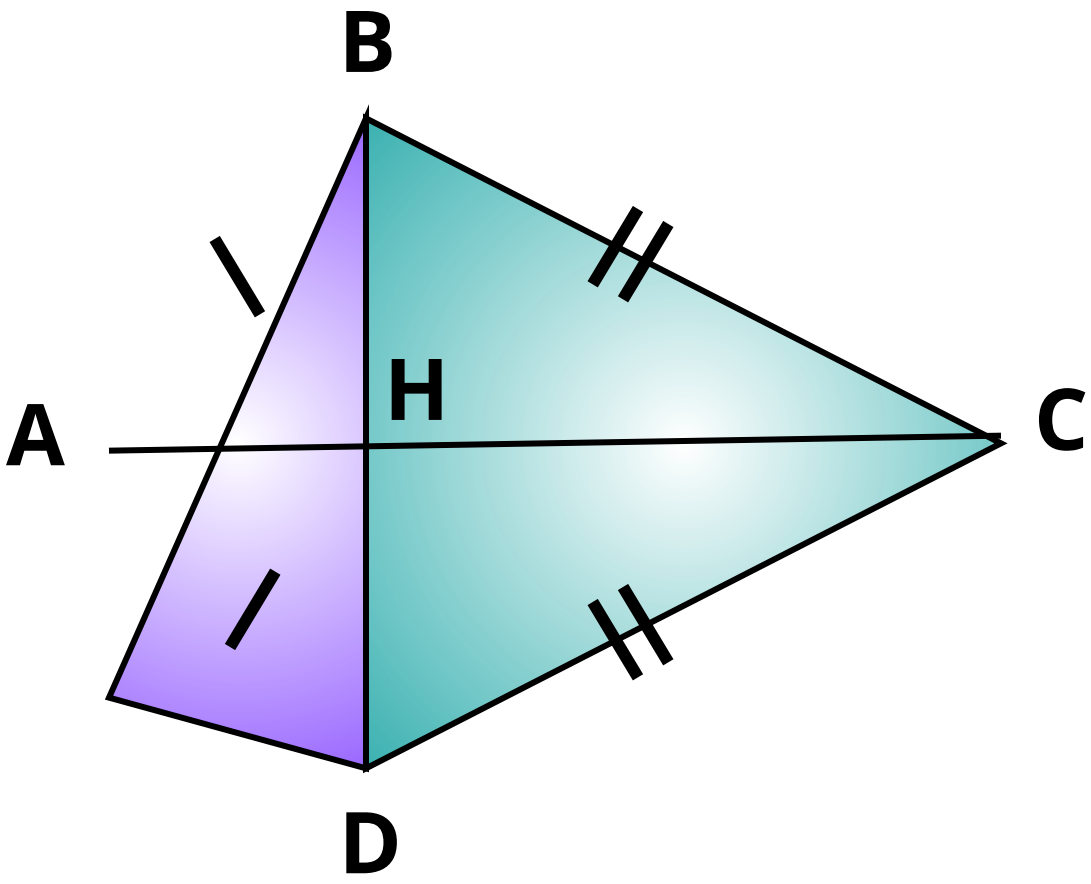
De demonstrat: $\angle P = \angle K$

Ex.4



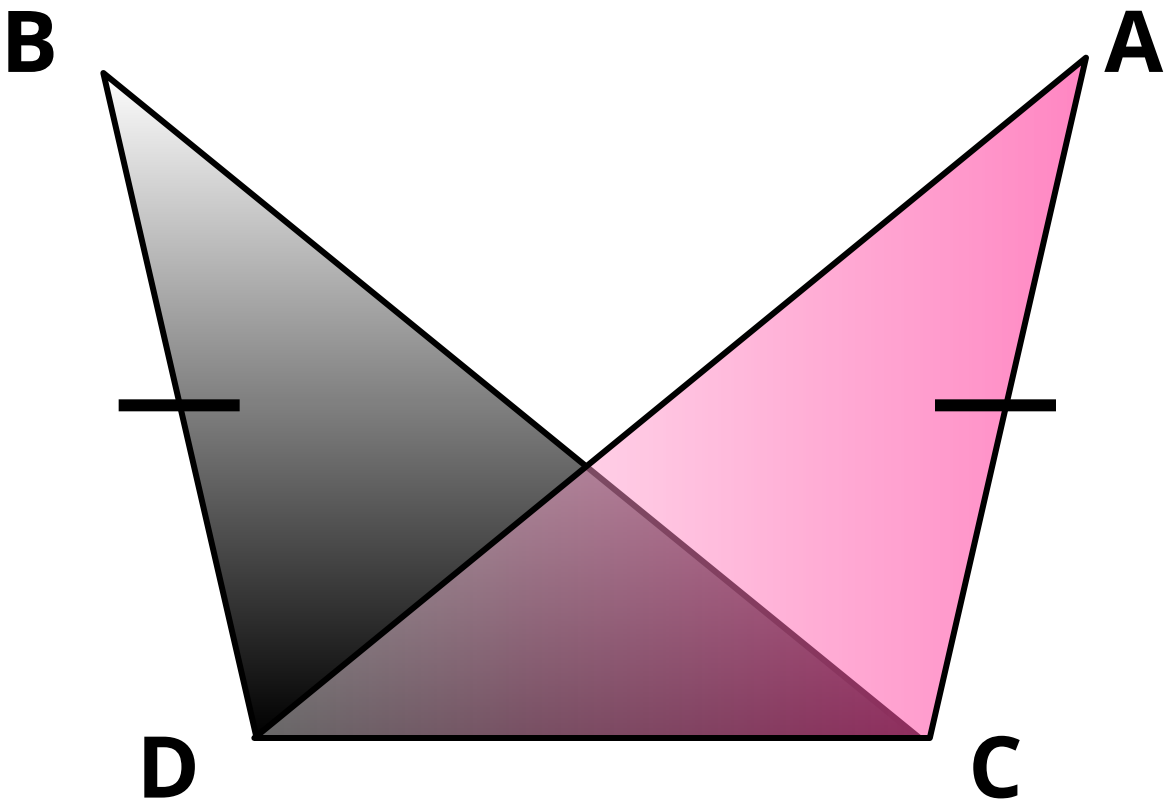
De demonstrat:
AH=HC

Ex.5



De demonstrat:
BH=HD

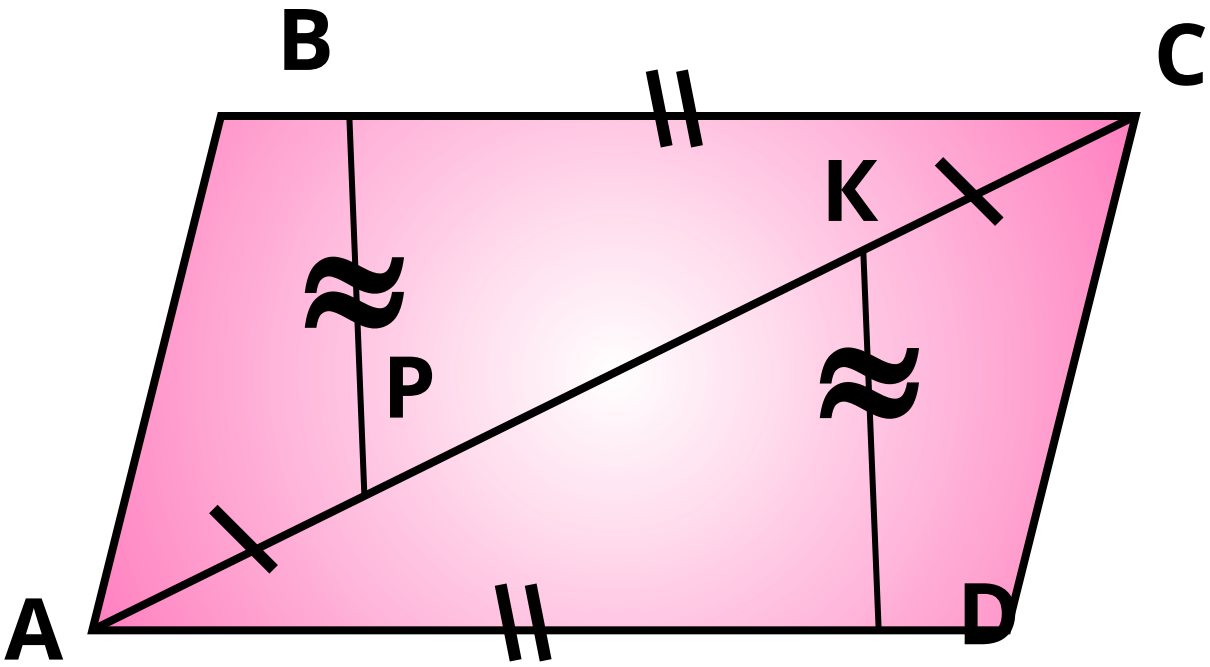
Ex.6



AD=CB

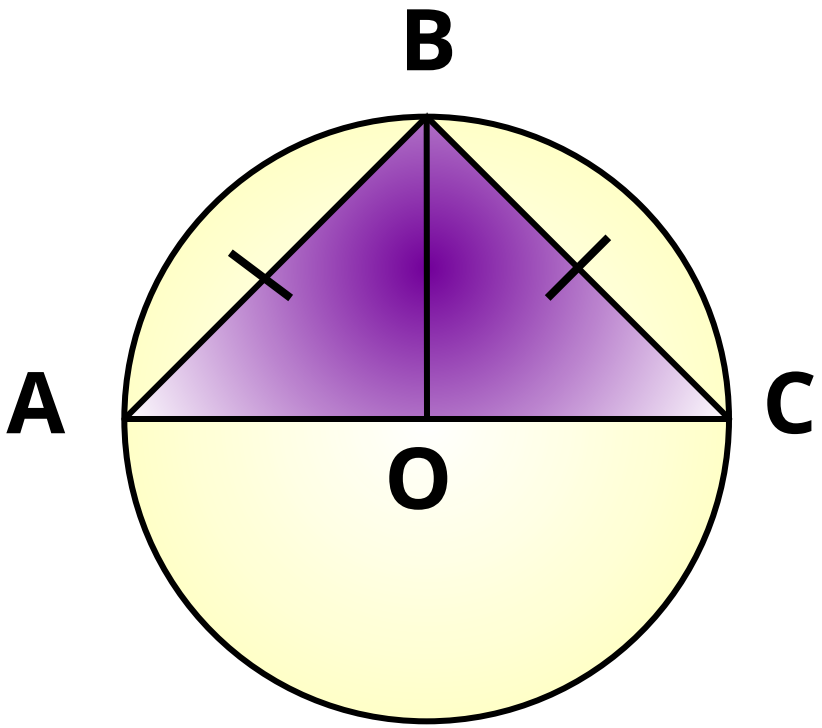
De demonstrat: $\angle A = \angle B$

Ex.7



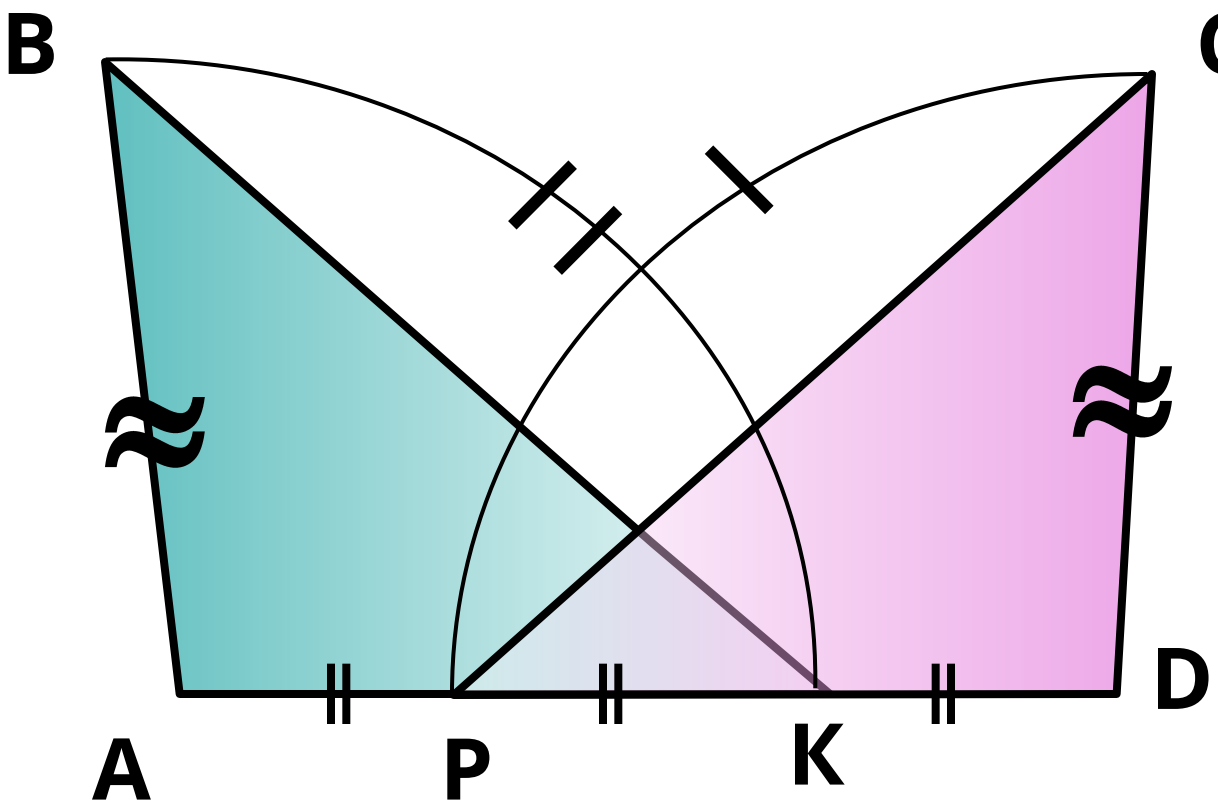
Găsiti triunghiurile congruente

Ex.8



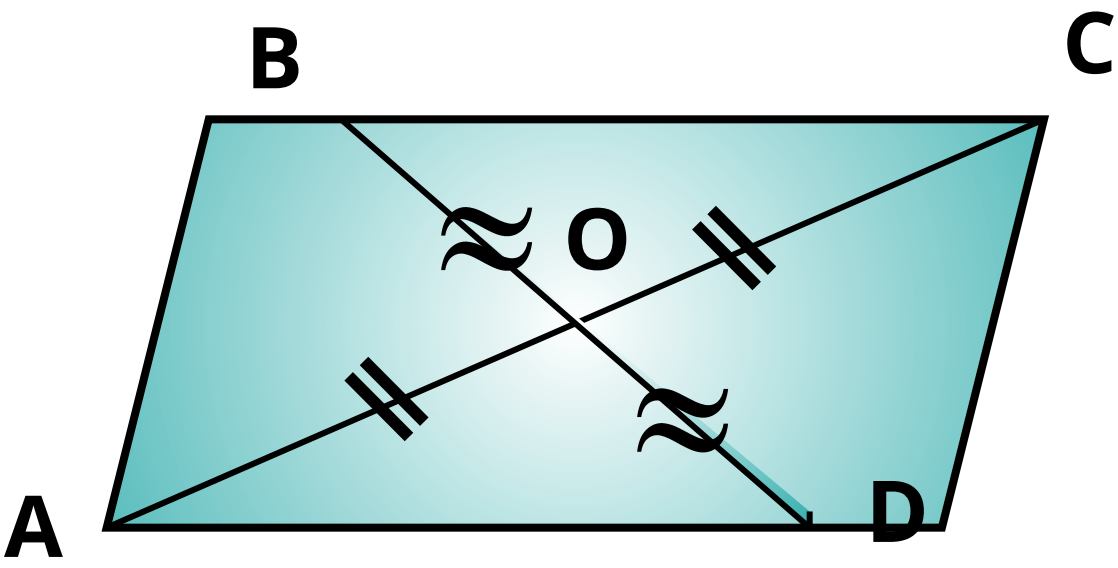
Găsiţi: $\angle AOB$

Ex.9



Găsiţi triunghiurile congruente

Ex.10



Găsiţi toate perechile de triunghiuri congruente