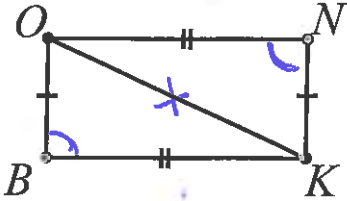


Corresponding Parts Postulate: Corresponding Parts of Congruent Triangles are Congruent  
(Corr. Parts  $\cong \Delta \cong$ )

Examples:

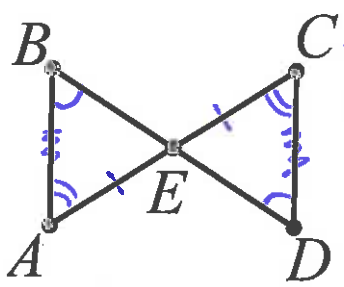
1. Given:  $\overline{BO} \cong \overline{NK}$   
 $\overline{BK} \cong \overline{NO}$   
Prove:  $\angle B \cong \angle N$



old  
new

① $\overline{BO} \cong \overline{NK}$ $\overline{BK} \cong \overline{NO}$	① given
② $\overline{OK} \cong \overline{OK}$	② reflexive
③ $\triangle ONK \cong \triangle KBO$	③ SSS
④ $\angle B \cong \angle N$	④ Corr parts $\cong \Delta \cong$

2. Given:  $\overline{AB} \parallel \overline{CD}$   
E midpoint of  $\overline{AC}$   
Prove:  $\overline{BA} \cong \overline{DC}$



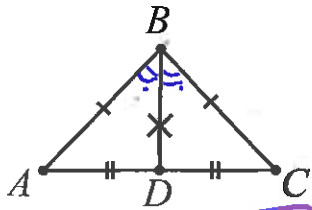
Flowchart for Example 2:

- Given:  $\overline{AB} \parallel \overline{CD}$  (boxed)
- Given: E is midpt  $\overline{AC}$  (boxed)
- From  $\overline{AB} \parallel \overline{CD}$ :  $\angle B \cong \angle D$ ,  $\angle A \cong \angle C$  (boxed)
- From E is midpt  $\overline{AC}$ :  $\overline{AE} \cong \overline{EC}$  (boxed)
- Reason: If 2 lines are  $\parallel$ , alt int  $\angle s \cong$
- Reason: midpt  $\div$  seg into 2  $\cong$  seg
- Conclusion:  $\triangle ABE \cong \triangle CDE$  (boxed)
- Reason: AAS
- Final Conclusion:  $\overline{BA} \cong \overline{DC}$  (boxed)
- Reason: Corr parts  $\cong \Delta \cong$

# Using Congruent Triangles

## To Find Angle Bisectors:

Example: Prove:  $\overline{BD}$  bisects  $\angle ABC$



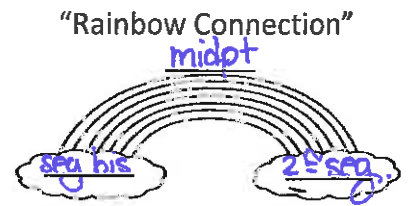
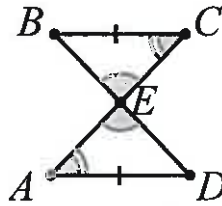
① Get  $\Delta s \cong$   $\triangle ABD \cong \triangle CBD$  SSS

② Get  $\cong$   $\angle s$   $\angle ABD \cong \angle CBD$  corr parts  $\cong \Delta s$

③ Conclude  $\overline{BD}$  bis  $\angle ABC$  an  $\angle$  bis divides an  $\angle$  into 2  $\cong$   $\angle s$

## To Find Segment Bisectors & Midpoints:

Example: Prove:  $\overline{AC}$  bisects  $\overline{BD}$



$\triangle ECB \cong \triangle EAD$  AAS

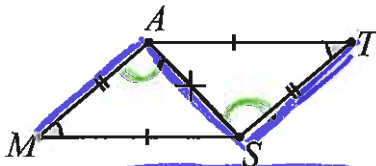
$\overline{BE} \cong \overline{ED}$  corr parts of  $\cong \Delta s$

E is midpt  $\overline{BD}$  midpt  $\div$  seg into 2  $\cong$  seg.

$\overline{AC}$  bis  $\overline{BD}$  at E seg bis passes thru midpt.

## To Find Parallel Lines:

Example: Prove:  $\overline{MA} \parallel \overline{TS}$



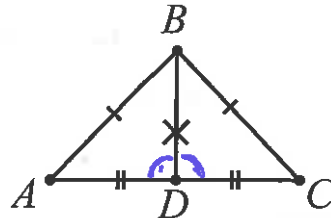
$\triangle MAS \cong \triangle TSA$  SSS

$\angle MAS \cong \angle TSA$  corr parts of  $\cong \Delta s$

$\overline{MA} \parallel \overline{TS}$  if 2 lines are cut by a trans w/ alt int  $\angle s \cong$ , the lines are  $\parallel$ .

## To Find Perpendicular Lines:

Example: Prove:  $\overline{BD} \perp \overline{AC} \Rightarrow$  get  $\angle s \cong$  and supp.



$\triangle ABD \cong \triangle CBD$  SSS

$\angle ADB \cong \angle CDB$  corr parts  $\cong \Delta s$

$\angle ADB$  supp  $\angle CDB$  2 adj  $\angle s$  formed by intersecting lines are supp

$\angle ADB \in \angle CDB$  rt  $\angle s$

adj  $\angle s$  that are  $\cong$  and supp are rt  $\angle s$ .  $\overline{BD} \perp \overline{AC}$  2 lines that meet at right  $\angle s$  are  $\perp$ .