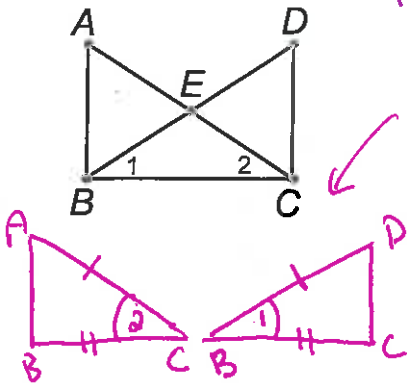


Overlapping Triangles

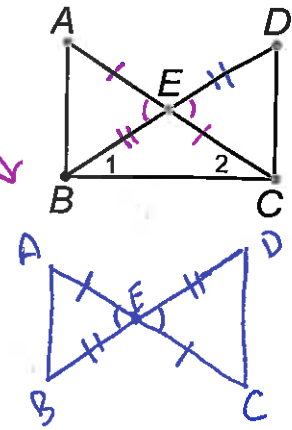
Example: Based on the given information, which 2 triangles can be proven congruent?

a. Given: $\angle 1 \cong \angle 2$
 $\overline{AC} \cong \overline{DB}$



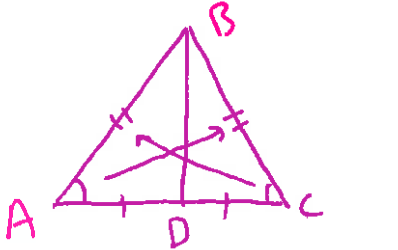
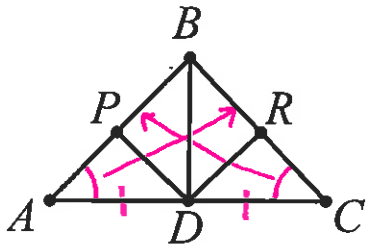
$\triangle ABC \cong \triangle DCB$
By SAS.

b. Given: \overline{AC} & \overline{BD} bisect each other



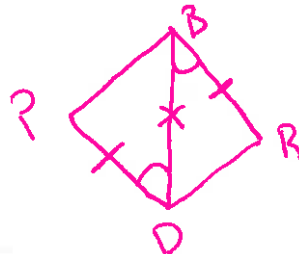
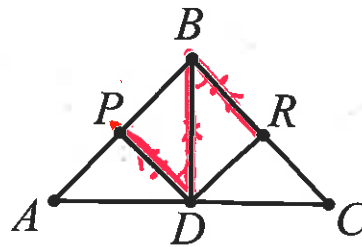
$\triangle ABE \cong \triangle CDE$
By SAS.

c. Given: $\angle A \cong \angle C$
 $\overline{AD} \cong \overline{CD}$



$\triangle ABD \cong \triangle CBD$
By SAS.

d. Given: $\overline{PD} \parallel \overline{BR}$
 $\overline{PD} \cong \overline{BR}$

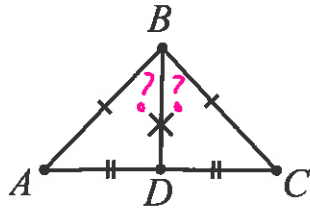


$\triangle PBD \cong \triangle RDB$
By SAS

Using Congruent Triangles

To Find Angle Bisectors:

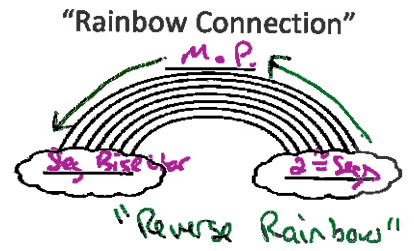
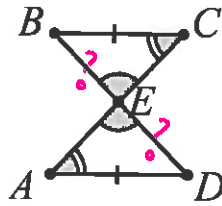
Example: Prove: \overline{BD} bisects $\angle ABC$ *need 2 \cong \angle 's.*



S	R
$\Delta ABD \cong \Delta CBD$	SSS
$\angle ABD \cong \angle CBD$	CPCTC
\overline{BD} bisects $\angle ABC$	\angle bisector \div \angle into 2 \cong \angle 's.

To Find Segment Bisectors & Midpoints:

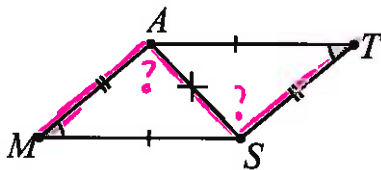
Example: Prove: \overline{AC} bisects \overline{BD} *need a midpt from 2 \cong segs.*



S	R
$\Delta AED \cong \Delta CEB$	AAS
$\overline{BE} \cong \overline{DE}$	CPCTC
E midpt of \overline{BD}	midpt made from 2 \cong Segs.
\overline{AC} bisects \overline{BD}	Seg. Bisector goes through midpt.

To Find Parallel Lines:

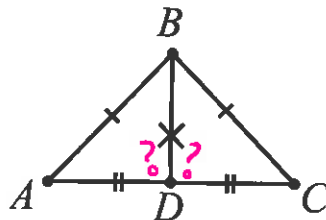
Example: Prove: $\overline{MA} \parallel \overline{TS}$ *need 2 \cong \angle 's (Alt. int)*



S	R
$\Delta MAS \cong \Delta TSA$	SSS
$\angle MAS \cong \angle TSA$	CPCTC
$\overline{MA} \parallel \overline{TS}$	2 lines cut by trans are \parallel when alt int \angle 's are \cong .

To Find Perpendicular Lines:

Example: Prove: $\overline{BD} \perp \overline{AC}$ *need 2 adjacent, \cong \angle 's*



S	R
$\Delta ADB \cong \Delta CDB$	SSS
$\angle ADB \cong \angle CBD$	CPCTC
$\overline{BD} \perp \overline{AC}$	adjacent \cong \angle 's are both right \angle 's.

new theorem: (to eliminate 2nd step)

2 int. lines that make adjacent, \cong \angle 's are \perp

theorem.