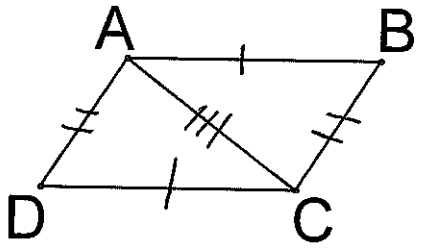
Beginner Proofs Notes

Name Key

Problem #1

Given: $\overline{AB} \cong \overline{CD}$
$\overline{BC} \cong \overline{DA}$
Prove: $\triangle ABC \cong \triangle CDA$

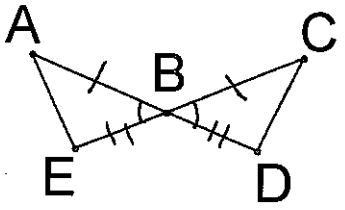


Method of Choice: SSS

Statements	Reasons
Side: $\overline{AB} \cong \overline{CD}$	Given
Side: $\overline{BC} \cong \overline{DA}$	Given
Side: $\overline{AC} \cong \overline{AC}$	Reflexive Prop.
$\triangle ABC \cong \triangle CDA$	SSS

Problem #2

Given: $\overline{AB} \cong \overline{CB}$
$\overline{EB} \cong \overline{DB}$
Prove: $\triangle ABE \cong \triangle CBD$



Method of Choice: SAS

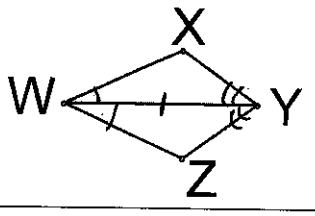
This order does not matter, just a checklist

Statements	Reasons
Side: $\overline{AB} \cong \overline{CB}$	Given
Side: $\overline{EB} \cong \overline{DB}$	Given
Angle ✓: $\angle ABE \cong \angle CBD$	Vertical Angles
$\triangle ABE \cong \triangle CBD$	SAS

Problem #3

Method of Choice: ASA

Given: $\angle XWY \cong \angle ZWY$
$\angle XYW \cong \angle ZYW$
Prove: $\triangle WXY \cong \triangle WZY$

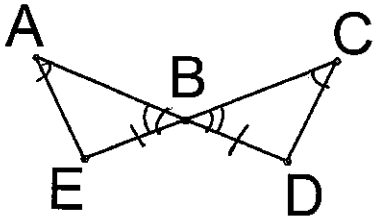


	Statements	Reasons
Angle	$\angle XWY \cong \angle ZWY$	Given
Angle	$\angle XYW \cong \angle ZYW$	Given
Side	$\overline{WY} \cong \overline{WY}$	Reflexive
	$\triangle WXY \cong \triangle WZY$	ASA

Problem #4

Method of Choice: AAS

Given: $\angle A \cong \angle C$
$\overline{BE} \cong \overline{BD}$
Prove: $\triangle ABE \cong \triangle CBD$



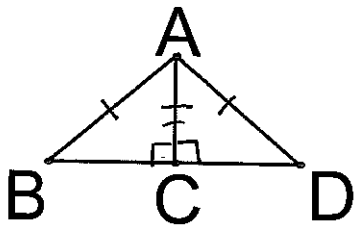
	Statements	Reasons
Angle	$\angle A \cong \angle C$	Given
Side	$\overline{BE} \cong \overline{BD}$	Given
Angle	$\angle ABE \cong \angle CBD$	Vertical Angles
	$\triangle ABE \cong \triangle CBD$	AAS

Problem #5

Given ΔABC, ΔADC right Δs,

$\overline{AB} \cong \overline{AD}$

Prove: $\Delta ABC \cong \Delta ADC$



Method of Choice: HL

	Statements	Reasons
Rt Δ	ΔABC, ΔADC are right triangles	given
Hyp	$\overline{AB} \cong \overline{AD}$	given
Leg	$\overline{AC} \cong \overline{AC}$	Reflexive
	$\Delta ABC \cong \Delta ADC$	HL