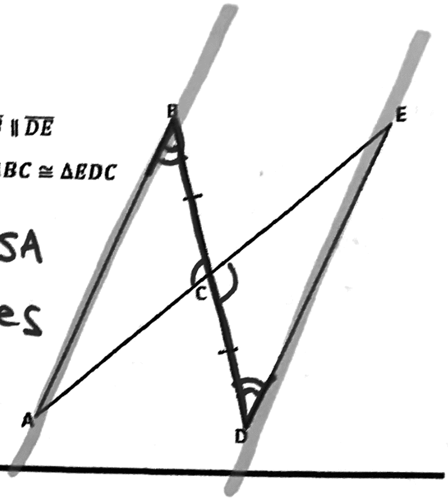
Proofs Day 2

Paragraph Proof

Given: $\overline{AB} \parallel \overline{DE}$

Prove: $\Delta ABC \cong \Delta EDC$



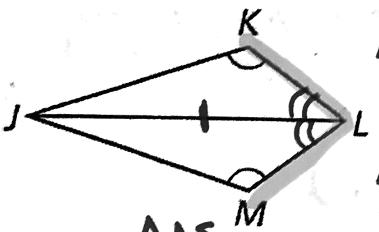
ASA

$\angle ACB \cong \angle DCE$ because they are vertical angles. It is given that $\overline{BC} \cong \overline{DC}$. It is given that $\overline{AB} \parallel \overline{DE}$. $\angle ABC \cong \angle EDC$ by Alternate Interior Angles Theorem. Therefore, $\Delta ACB \cong \Delta ECD$ by ASA.

Given: $\overline{JL}$ bisects $\angle KLM$

Prove: $\Delta JKL \cong \Delta JML$

Flow Chart Proof



AAS

A: $\angle K \cong \angle M$ — Given → $\Delta JKL \cong \Delta JML$ AAS

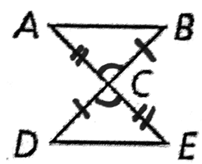
A: $\overline{JL}$ bisects $\angle KLM$ — Given → $\angle KLJ \cong \angle MLJ$ def. of angle bisector → $\Delta JKL \cong \Delta JML$ AAS

S: $\overline{JL} \cong \overline{JL}$ Reflexive Property → $\Delta JKL \cong \Delta JML$ AAS

Two-Column Proof

Given: C is the midpoint of $\overline{BD}$ and $\overline{AE}$.

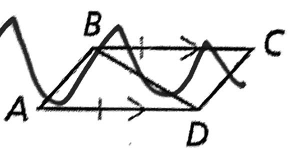
Prove: $\Delta ABC \cong \Delta EDC$



	Statements	reasons
S	C is the midpoint of $\overline{BD}$	Given
	$\overline{DC} \cong \overline{BC}$	Def. of Midpoint
A	$\angle ACB \cong \angle ECD$	vertical angles
S	C is the midpoint of $\overline{AE}$	Given
	$\overline{AC} \cong \overline{CE}$	Def. of midpoint
	$\Delta ACB \cong \Delta ECD$	SAS

Given: $\overline{BC} \parallel \overline{AD}$, $\overline{BC} \cong \overline{AD}$

Prove: $\Delta ABD \cong \Delta CDB$

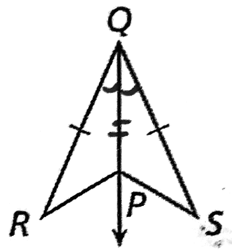


CPCTC = "corresponding parts of congruent triangles are congruent" vel the angle of elevation to a building's tenth story windo…

Two-Column Proof

Given: QP bisects $\angle RQS$. $QR \cong QS$

Prove: $\Delta RQP \cong \Delta SQP$



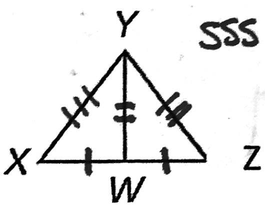
	statements	reasons
S	$\overline{QP} \cong \overline{QP}$	Reflexive Property
	$\overline{QP}$ bisects $\angle RQS$	Given
A	$\angle RQP \cong \angle SQP$	def. of angle bisector
S	$\overline{QR} \cong \overline{QS}$	Given
	$\Delta RQP \cong \Delta SQP$	SAS

Flow Chart Proof

Given: $\overline{YW}$ bisects $\overline{XZ}$, $\overline{XY} \cong \overline{ZY}$.

Prove: $\angle XYW \cong \angle ZYW$

SSS → CPCTC



S: $\overline{YW} \cong \overline{YW}$ — Reflexive Property → $\Delta XYW \cong \Delta ZYW$ — SSS → $\angle XYW \cong \angle ZYW$ — CPCTC

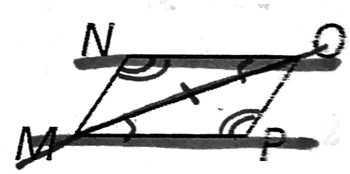
S: $\overline{XY} \cong \overline{ZY}$ — Given → $\Delta XYW \cong \Delta ZYW$

S: $\overline{YW}$ bisects $\overline{XZ}$ — Given → $\overline{XW} \cong \overline{WZ}$ — def. of segment bisector → $\Delta XYW \cong \Delta ZYW$

Two-Column Proof

Given: $\overline{NO} \parallel \overline{MP}$, $\angle N \cong \angle P$

Prove: $\angle NMO \cong \angle POM$



	statements	reasons
	$\overline{NO} \parallel \overline{MP}$	Given
A	$\angle NOM \cong \angle PMO$	Alt. Interior $\angle$s
A	$\angle N \cong \angle P$	Given
S	$\overline{MO} \cong \overline{MO}$	Reflexive Property
	$\Delta MNO \cong \Delta OPM$	AAS
	$\angle NMO \cong \angle POM$	CPCTC

Given: J is the midpoint of $\overline{KM}$ and $\overline{NL}$.

Prove: $\angle LKJ \cong \angle NMJ$