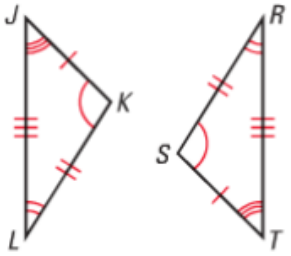
Name: _____ Date: _____ Block: _____

Congruence and Triangles Notes 4.2

Objective: Identify congruent figures and corresponding parts

Congruent Triangles	
Corresponding Parts	
Third Angles Theorem	

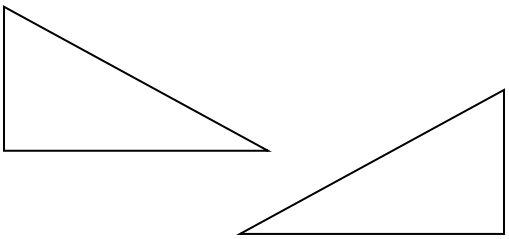
Write a congruence statement for the triangles. Identify all pairs of congruent corresponding parts.



Congruence Statement: _____ ≅ _____

Corresponding angles: Corresponding sides:

Given ΔABC ≅ ΔDEF, label the diagram. Then, identify all pairs of congruent corresponding parts.



Corresponding angles:

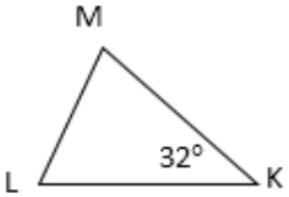
Corresponding sides:

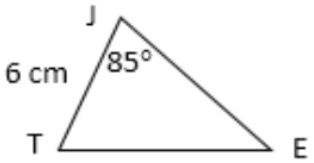
Given that ΔMKL ≅ ΔJET, complete each statement.

A) ∠L ≅ _____ B) MK ≅ _____

C) m∠E = _____ D) ML = _____

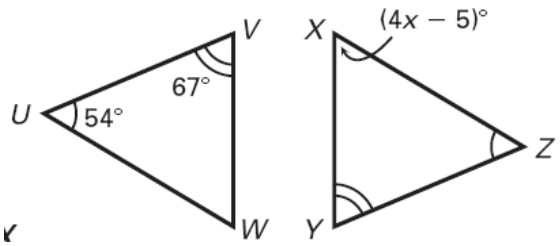
E) ΔETJ ≅ _____ F) ∠JTE ≅ _____



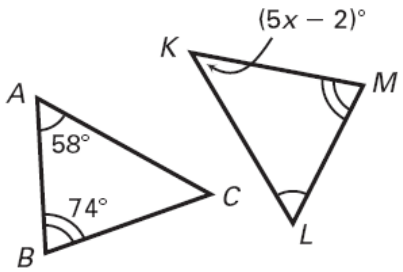


Find the value of x.

A)



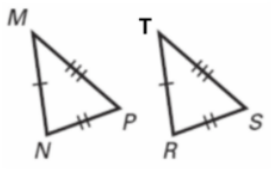
B)



Name: _____ Date: _____ Block: _____

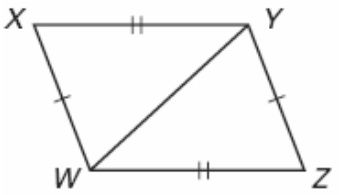
Proving Triangles are Congruent: SSS, SAS, and HL Notes 4.3-4.4

Objectives: Prove that triangles are congruent using the SSS Congruence Postulate and the SAS Congruence Theorem.

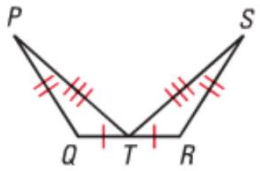
Side Side Side Congruence **(SSS)**		

Decide whether the congruence statement is true.

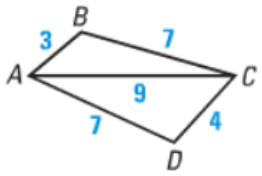
A) $\triangle XYW, \triangle ZWY$



B) $\triangle QPT \cong \triangle RST$



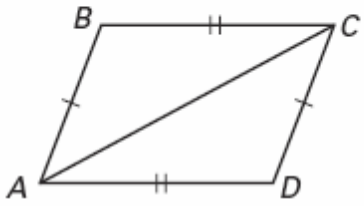
C)



Fill in the following proofs with the necessary Statements and Reasons to prove the triangles congruent.

A) **Given:** $\overline{AB} \cong \overline{CD}, \overline{BC} \cong \overline{AD}$

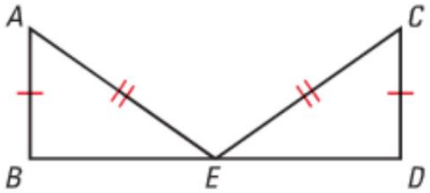
Prove: $\triangle ABC \cong \triangle CDA$



Statements	Reason

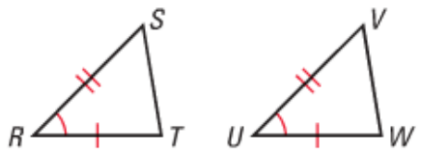
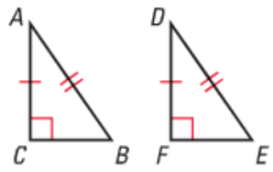
B) **GIVEN** ▶ $\overline{AE} \cong \overline{CE}, \overline{AB} \cong \overline{CD}$, E is the midpoint of $\overline{BD}$.

PROVE ▶ $\triangle EAB \cong \triangle ECD$



Statements	Reason

Name: _____ Date: _____ Block: _____

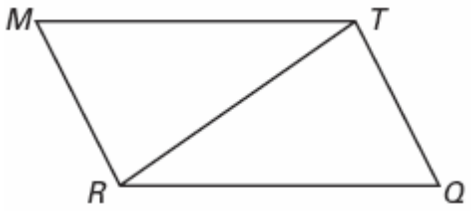
Side Angle Side Congruence **SAS**		
Included Angle		
Hypotenuse Leg Congruence **HL**		

Use the diagram to name the included angle between the pair of sides.

A) $\overline{MT}$ and $\overline{TR}$

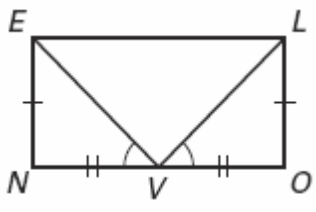
B) $\overline{RT}$ and $\overline{MR}$

C) $\overline{RT}$ and $\overline{QR}$

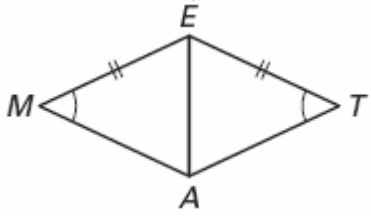


Decide whether the congruence statement is true.

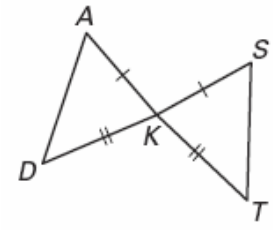
A) $\triangle ENV, \triangle LOV$



B) $\triangle MAE, \triangle TAE$



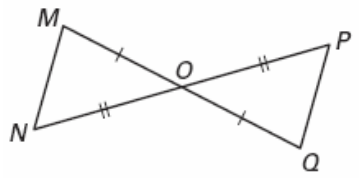
C) $\triangle DKA, \triangle TKS$



Name: _____ Date: _____ Block: _____

Given: O is the midpoint of MQ
O is the midpoint of NP

Prove: $\triangle MON \cong \triangle QOP$



Statements	Reasons

Write a proof.

GIVEN ▶ $\overline{WY} \cong \overline{XZ}$, $\overline{WZ} \perp \overline{ZY}$, $\overline{XY} \perp \overline{ZY}$

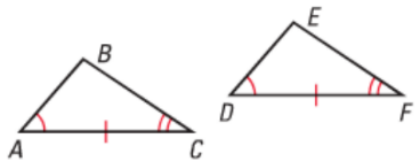
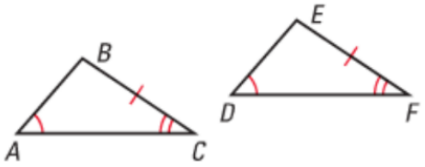
PROVE ▶ $\triangle WYZ \cong \triangle XZY$

Statements	Reason

Name: _____ Date: _____ Block: _____

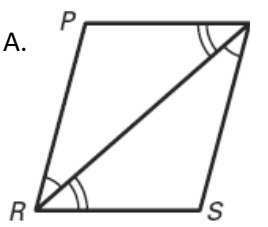
Proving Triangles Congruent: ASA, AAS Notes 4.5

Objectives: Prove that triangles are congruent using the ASA Congruence Postulate and the AAS Congruence Theorem.

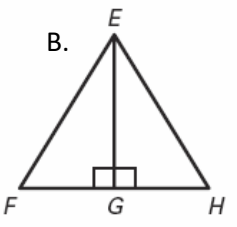
Angle Side Angle Congruence **ASA**		
Included Side		
Angle Angle Side Congruence **AAS**		

Is it possible to prove that the triangles are congruent? If so, state the postulate or theorem you would use. Explain your reasoning.

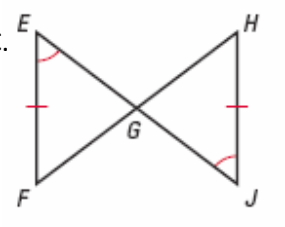
A. T



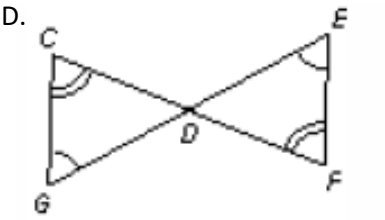
B.



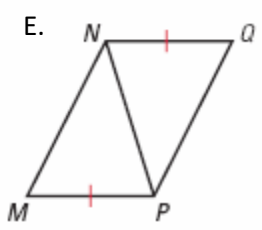
C.



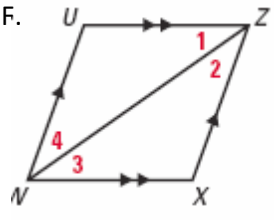
D.



E.



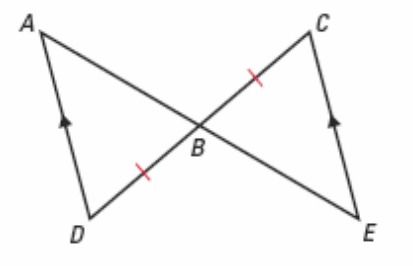
F.



Name: _____ Date: _____ Block: _____

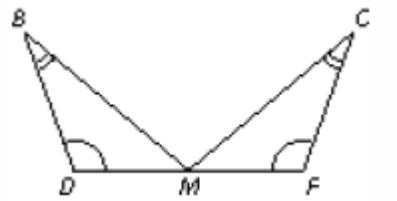
Fill in the Proof.

Given: AD || EC
BD ≅ BC
Prove: Δ ABD ≅ Δ EBC



Statements	Reasons

Given: ∠B ≅ ∠C
∠D ≅ ∠F
M is the midpoint of DF.
Prove: Δ BDM ≅ Δ CFM



Statements	Reasons

Name: _____ Date: _____ Block: _____

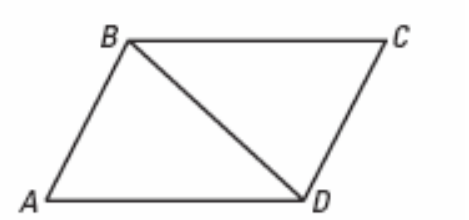
Using Congruent Triangles — Notes 4.6

Objective: Use congruent triangles to plan and write proofs.

CPCTC- **Corresponding Parts of Congruent Triangles are Congruent**	*Explanation: To prove that parts (sides or angles) of triangles are congruent to parts of other triangles, **first prove the triangles are congruent**. Then by CPCTC, all other corresponding parts will be congruent.	

Given: $\overline{AB} \cong \overline{DC}$; $\overline{AD} \cong \overline{BC}$

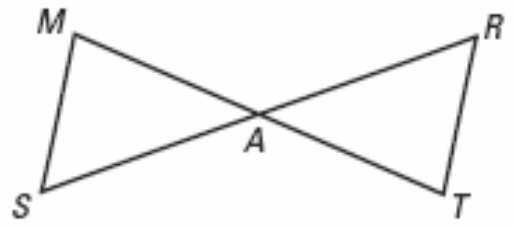
Prove: $\angle A \cong \angle C$



Statements	Reasons

Given: $MA \cong TA$, **A is the midpoint of SR**

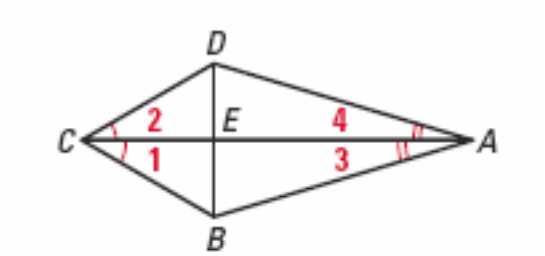
Prove: $MS \cong TR$



Statements	Reasons

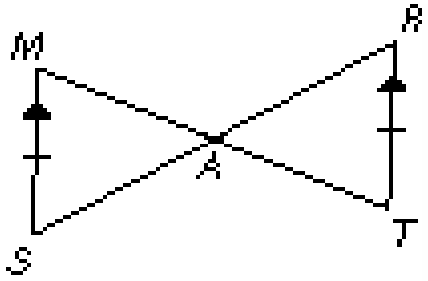
Name: _____ Date: _____ Block: _____

Given: ∠1 ≅ ∠2 ; ∠3 ≅ ∠4
Prove: CB ≅ CD



Statements	Reasons

Given: MS || TR; MS ≅ TR
Prove: A is the midpoint of MT.



Statements	Reasons