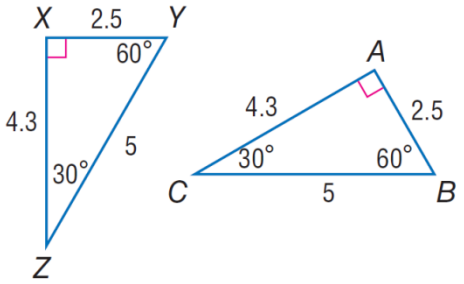
Name:_____ Per:_____

Unit 4 Congruent Triangles HOMEFUN Days 5-9

Unit 4 Day 5 Congruence and Triangles

Show that the following polygons are congruent by identifying all congruent corresponding sides and angles.

1.

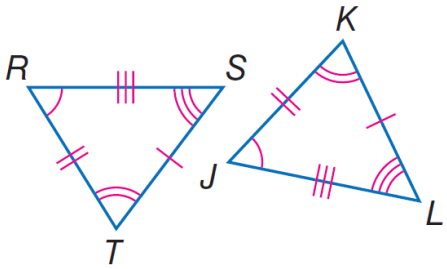


$XY =$ _____ $\angle X =$ _____

$XZ =$ _____ $\angle Y =$ _____ $\Delta XYZ \cong$ _____

$ZY =$ _____ $\angle Z =$ _____

2.

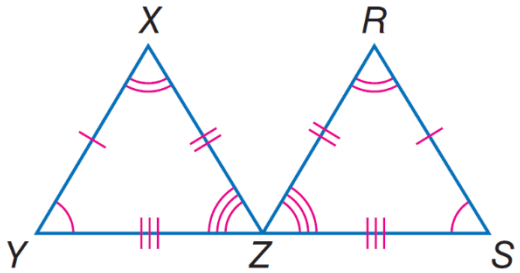


$JL =$ _____ $\angle K =$ _____

$KL =$ _____ $\angle L =$ _____ $\Delta JKL \cong$ _____

$JK =$ _____ $\angle J =$ _____

3.

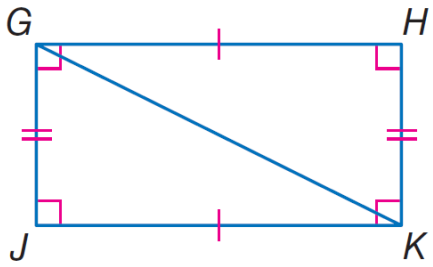


$RS =$ _____ $\angle X =$ _____

$ZS =$ _____ $\angle Y =$ _____ $\Delta RSZ \cong$ _____

$RZ =$ _____ $\angle Z =$ _____

4.

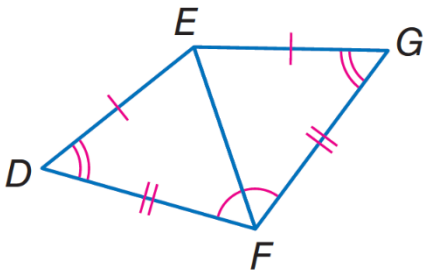


$GK =$ _____ $\angle GKJ =$ _____

$GJ =$ _____ $\angle J =$ _____ $\Delta HKG \cong$ _____

$JK =$ _____ $\angle KGJ =$ _____

5.

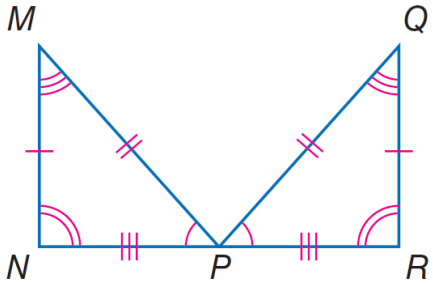


$DE =$ _____ $\angle DEF =$ _____

$DF =$ _____ $\angle DFE =$ _____ $\Delta GFE \cong$ _____

$EF =$ _____ $\angle D =$ _____

6.



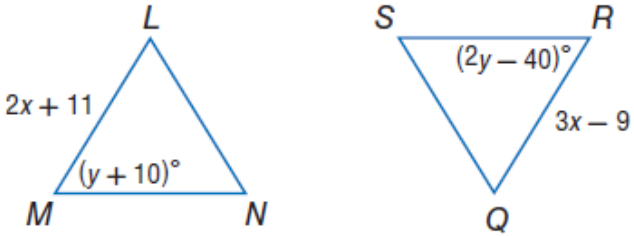
$PQ =$ _____ $\angle MNP =$ _____

$QR =$ _____ $\angle MPN =$ _____ $\Delta NMP \cong$ _____

$PR =$ _____ $\angle NMP =$ _____

Given the following information, find the variables.

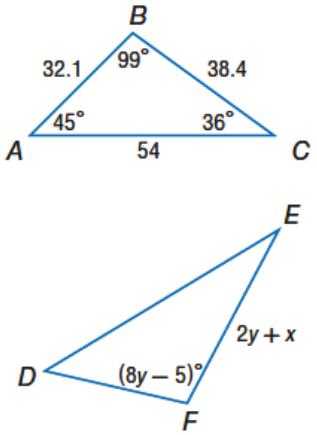
7. $\Delta LMN \cong \Delta QRS$



$x =$ _____

$y =$ _____

8. $\Delta ABC \cong \Delta DFE$



$x =$ _____

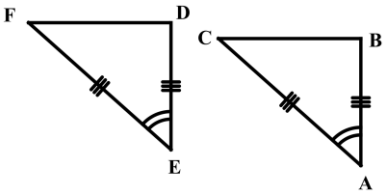
$y =$ _____

9. Given $\Delta PQR \cong \Delta JKL$, $PQ = 9x - 45$, $JK = 6x + 15$, $KL = 2x$ *and* $JL = 5x$, what is the value of x? Draw the triangles to earn full credit.

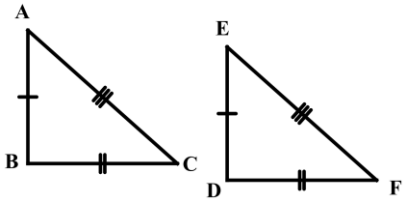
Unit 4 Day 6 Proving Congruence – SSS /SAS

Directions: Decide which two triangles are congruent. Write **SSS, SAS, or NEI.** If it is **SSS or SAS**, <u>write the congruent triangle statement</u>. If it is NEI, explain your reasoning.

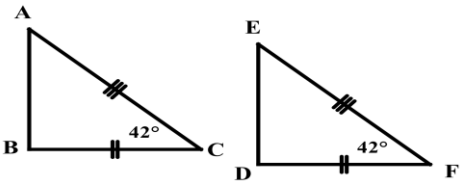
1.



2.



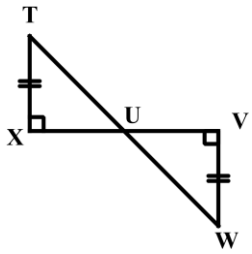
3.



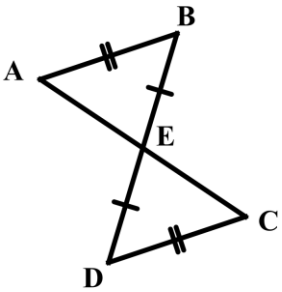
_____ _____ _____

_____ _____ _____

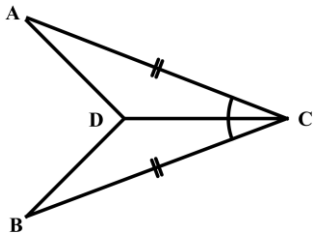
4.



5.



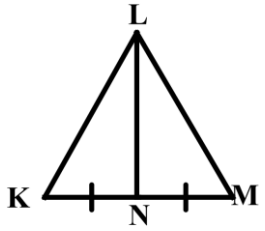
6.



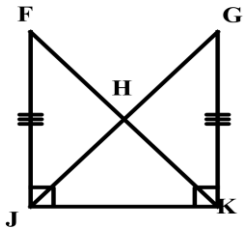
_____ _____ _____

_____ _____ _____

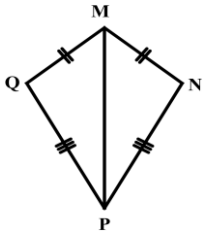
7.



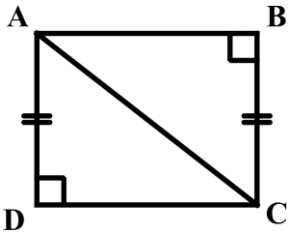
8.



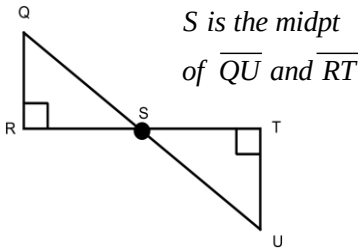
9.



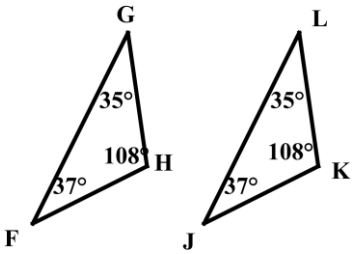
10.



11.



12.



State the 3rd congruence that must be given to prove that ΔRST and ΔXYZ, using the indicated method. (what other corresponding parts are needed) if possible.

DRAW A PICTURE.

13. Given: $\overline{RS} \cong \overline{XY}$, $\overline{TR} \cong \overline{ZX}$, Prove by **SSS**

14. Given: $\overline{YZ} \cong \overline{ST}$, $\overline{ZX} \cong \overline{TR}$, Prove by **SAS**

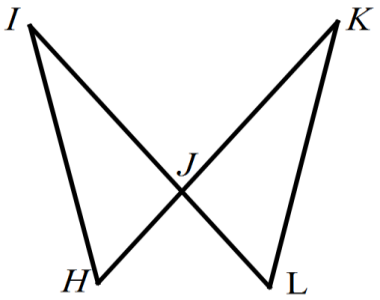
15. In the figure $\angle H \cong \angle L$ and $HJ = JL$. Which of the following statements is about congruence is true?

A. $\Delta HIJ \cong \Delta LKJ$ by ASA

B. $\Delta HIJ \cong \Delta KLJ$ by SSS

C. $\Delta HIJ \cong \Delta KLJ$ by SAS

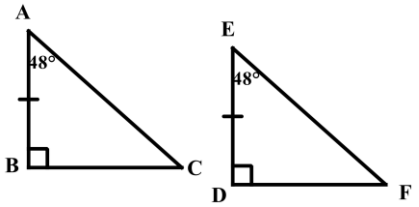
D. $\Delta HIJ \cong \Delta LKJ$ by SAS



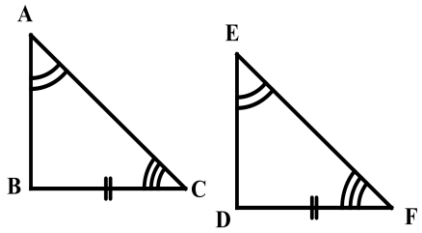
Unit 4 Day 7 Proving Congruence – ASA /AAS

Directions: Decide if the two triangles are congruent. Write **SSS, SAS, AAS, ASA or NEI**. If it is SSS, SAS, ASA, or AAS <u>write the congruent triangle statement</u>. If it is NEI, explain your reasoning.

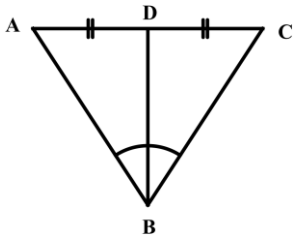
1.



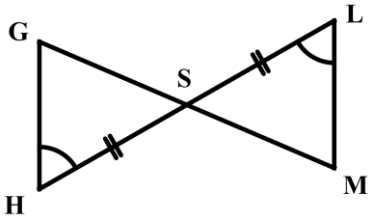
2.



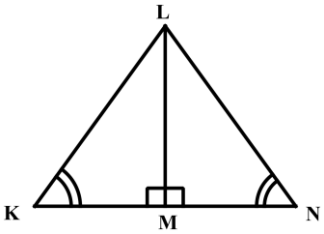
3.



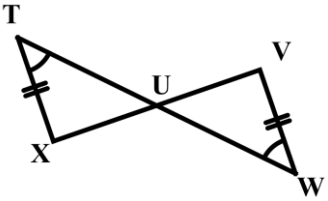
4.



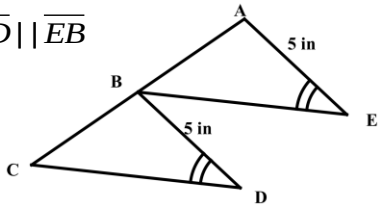
5.



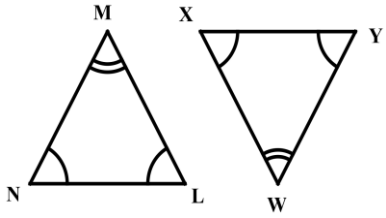
6.



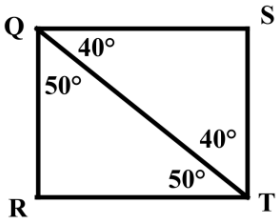
7. $\overline{CD} \parallel \overline{EB}$



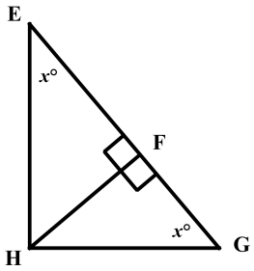
8.



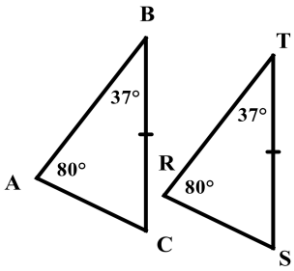
9.



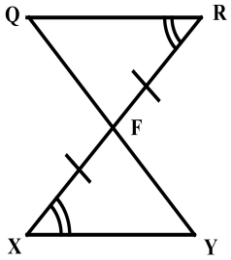
10.



11.



12.



State the 3rd congruence that must be given to prove that $\Delta RST \cong \Delta XYZ$, using the indicated method. (what other corresponding parts are needed) if possible**. Draw a picture.**

13. Given: $\overline{RS} \cong \overline{XY}$, $\angle S \cong \angle T$, Prove by ASA

14. Given: $\overline{YZ} \cong \overline{ST}$, $\angle T \cong \angle Z$, Prove by **AAS**

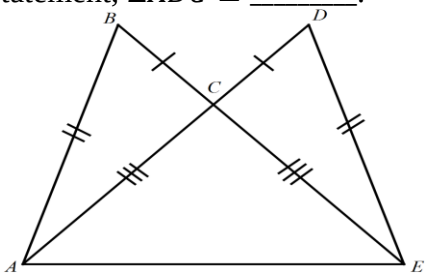
15. Refer To the figure to complete the congruence statement, $\Delta ABC \cong$ _____.

A. ΔACE

B. ΔEDC

C. ΔEAD

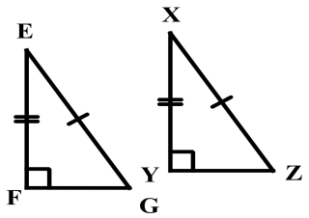
D. ΔEDA



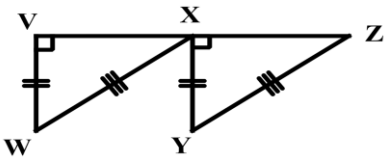
Unit 4 –Day 8 Proving Triangle Congruence – HL

Directions: Decide which two triangles are congruent. Write **SSS, SAS, ASA, AAS, HL, or NEI.** If it is SSS, SAS, ASA, AAS, or HL <u>write the congruent triangle statement</u>. If NEI, explain your reasoning.

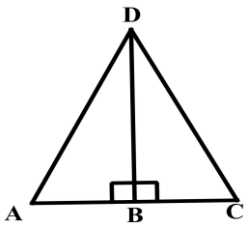
1.



2.



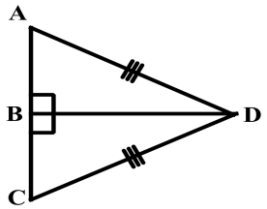
3.



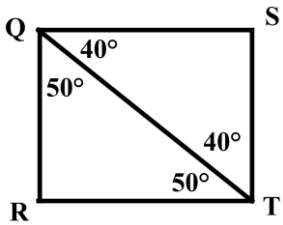
_____ _____ _____

_____ _____ _____

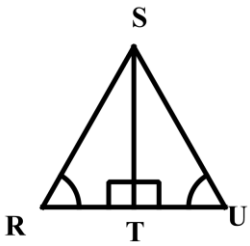
4.



5.



6.



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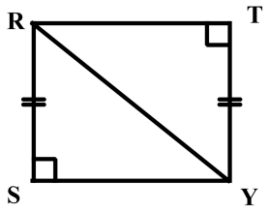
7.



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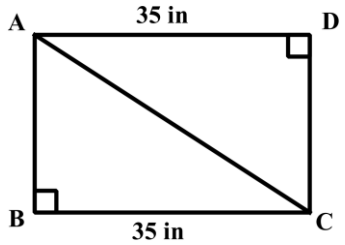

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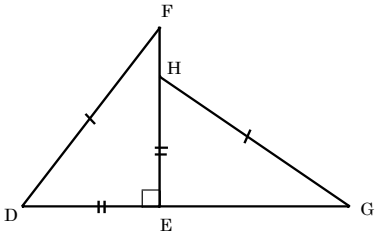
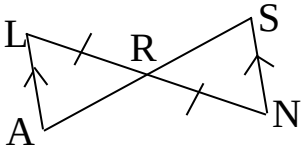


10.



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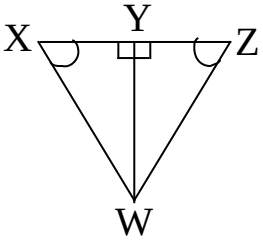

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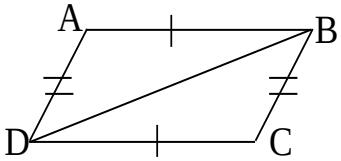

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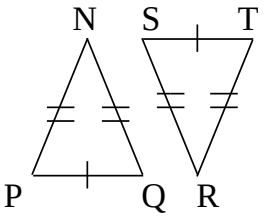

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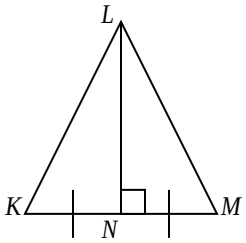

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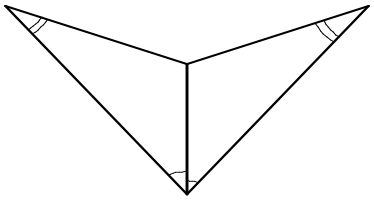


16. If $\Delta CED \cong \Delta QRP$ by HL-congruence, which of the following is true? DRAW A PICTURE.

A. $\angle C \cong \angle Q, \angle E \cong \angle R, \angle D \cong \angle P$

B. $\angle C \cong \angle Q, \angle E \cong \angle P, \angle D \cong \angle R$

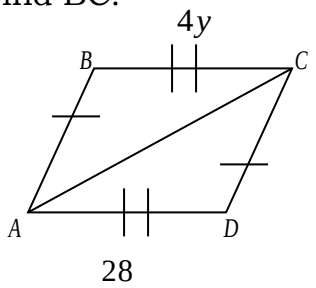
C. $\angle C \cong \angle P, \angle E \cong \angle R, \angle D \cong \angle Q$

D. $\angle C \cong \angle R, \angle E \cong \angle Q, \angle D \cong \angle P$

Unit 4 – Day 9 – Triangle Congruence – CPCTC

State how the given triangles are congruent, (if possible) then find the requested information.

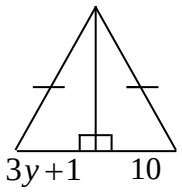
1. Find BC.



Reason: _____

$BC =$ _____

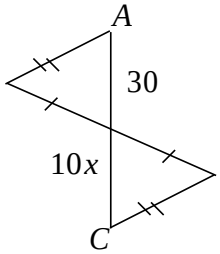
2. Find y.



Reason: _____

$y =$ _____

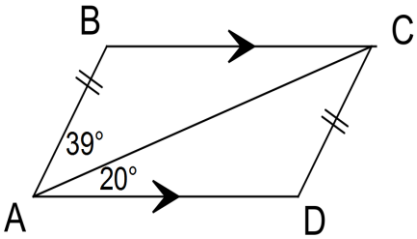
3. Find AC



Reason: _____

$AC =$ _____

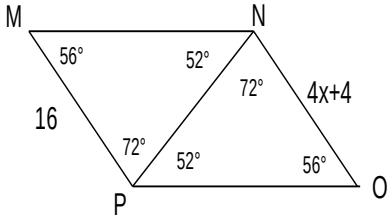
4. Find $m\angle ADC$



Reason: _____

$m\angle ADC =$ _____

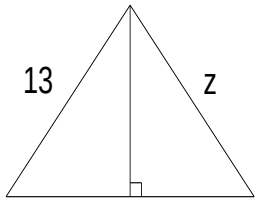
5. Find NQ



Reason: _____

$NO =$ _____

6. Find z



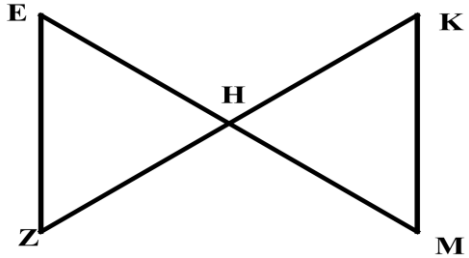
Reason: _____

$z =$ _____

<u>Write a congruency statement proving the following statements.</u>

7. Given: H is the midpoint of $\overline{EM}$ & $\overline{ZK}$

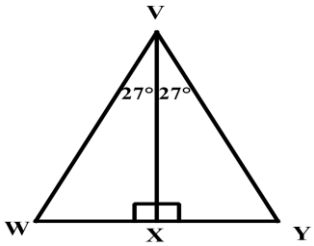
Prove: $\overline{EZ} \cong \overline{KM}$



_____

8. Given: Diagram

Prove: $\angle W \cong \angle Y$



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