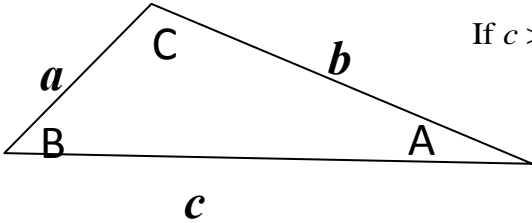
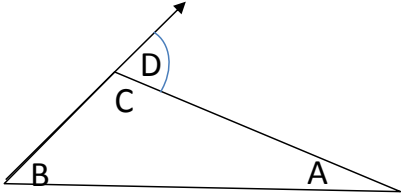
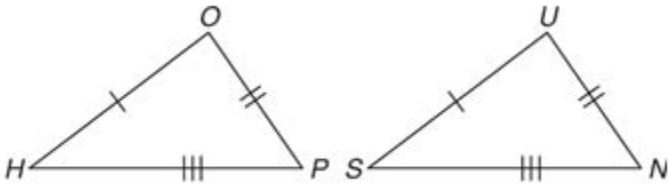
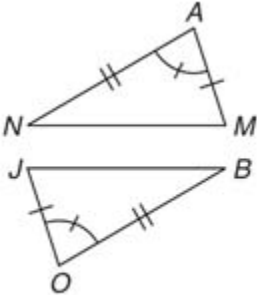
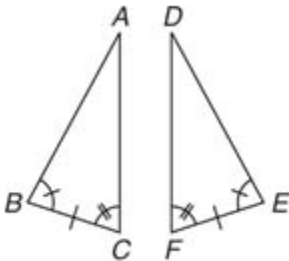
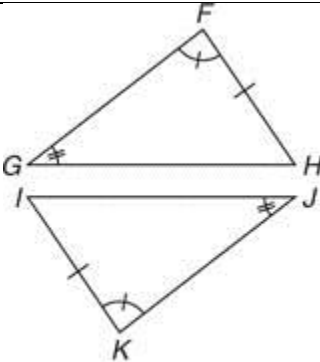
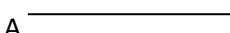


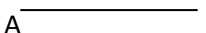
## TRIANGLE CONGRUENCE POSTULATES

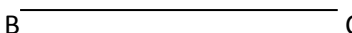
<p><b>Side-Angle Inequality Postulate</b>            In a triangle, if one side is longer than another side, then the angle opposite the longer side is larger than the angle opposite the shorter side. (Lesson 4.3)</p>	 <p style="text-align: right;">If <math>c &gt; b &gt; a</math>, then <math>\angle C &gt; \angle B &gt; \angle A</math></p>
<p><b>Triangle Exterior Angle Postulate</b> The measure of an exterior angle of a triangle is equal to the sum of the measures of the remote interior angles. (Lesson 4.3)</p>	 <p style="text-align: right;"><math>m\angle D = m\angle B + m\angle A</math></p>
<p><b>SSS Congruence Postulate</b> If the three sides of one triangle are congruent to the three sides of another triangle, then the triangles are congruent. (Lesson 4.4)</p>	 <p style="text-align: center;"><math>\triangle HOP \cong \triangle SUN</math> by SSS</p>
<p><b>SAS Congruence Postulate</b> If two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle, then the triangles are congruent. (Lesson 4.4)</p>	 <p style="text-align: center;"><math>\triangle MAN \cong \triangle JOB</math> by SAS</p>
<p><b>ASA Congruence Postulate</b> If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent. (Lesson 4.5)</p>	 <p style="text-align: center;"><math>\triangle ABC \cong \triangle DEF</math> by ASA</p>
<p><b>AAS Congruence Postulate</b> If two angles and a non-included side of one triangle are congruent to the corresponding angles and side of another triangle, then the triangles are congruent. (Lesson 4.5)</p>	 <p style="text-align: center;"><math>\triangle FGH \cong \triangle KJI</math> by AAS</p>

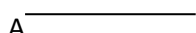
## TRIANGLE CONGRUENCE POSTULATES

Construct a triangle, more than one if possible, using the following:

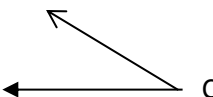

a)  A ————— B

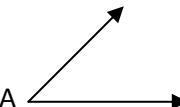

 A ————— C

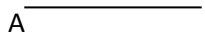
 B ————— C


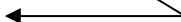
b)  A ————— B

 A ————— C

  C

c)   A

 A ————— C

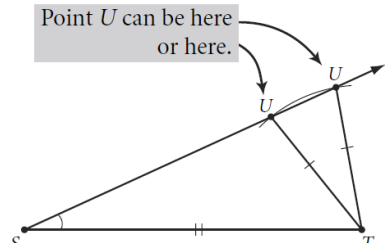
  C

---

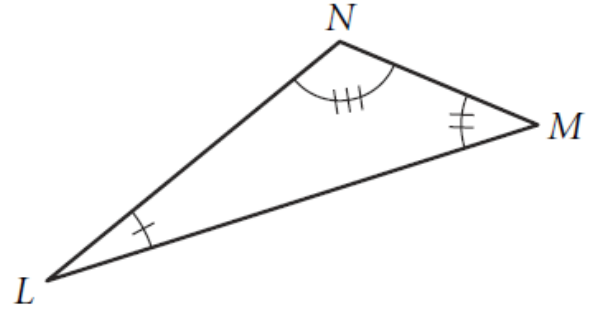
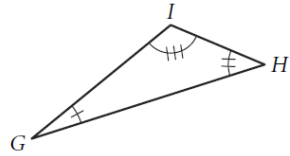
Draw a triangle with the following interior angles 45, 45, 90.

# TRIANGLE CONGRUENCE POSTULATES

Why did SSA not work?



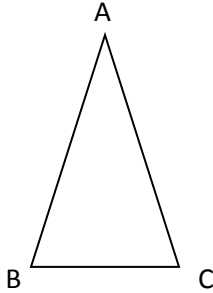
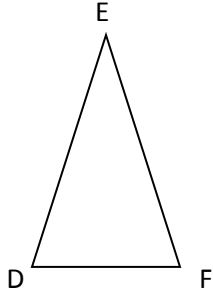
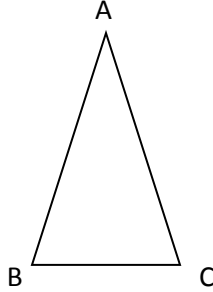
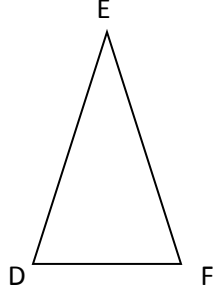
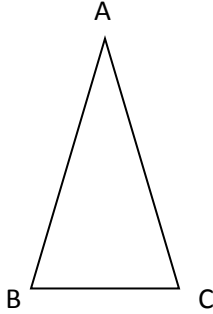
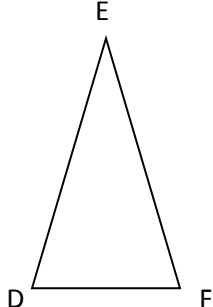
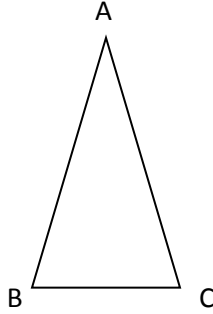
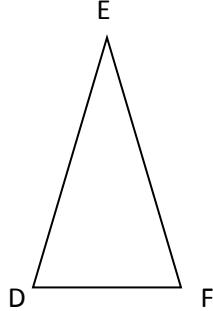
Why did AAA not work?



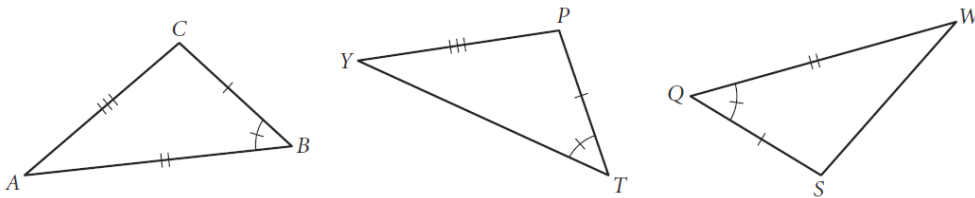
## TRIANGLE CONGRUENCE POSTULATES

Mark the following triangles given the stated congruent triangle postulate.

$$\triangle ABC \cong \triangle DEF$$

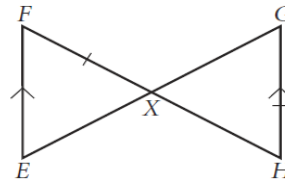
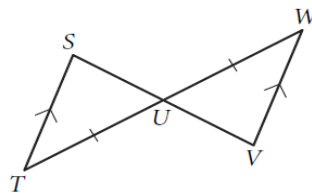
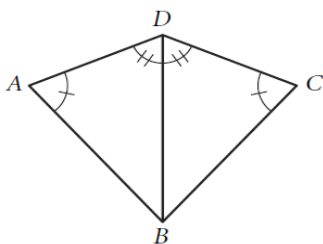
<p><b>SSS</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p><b>SAA</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<p><b>ASA</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p><b>SAS</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>

Determine which triangles are congruent and why?



Using your previous postulates mark congruent angles and sides if they exist and then find the corresponding congruent triangle. State the reason the two triangles are congruent.

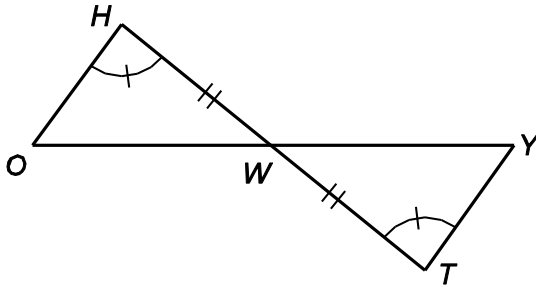
- a.  $\triangle ADB \cong \triangle$  \_\_\_\_\_      b.  $\triangle STU \cong \triangle$  \_\_\_\_\_      c.  $\triangle EFX \cong \triangle$  \_\_\_\_\_



1  $\triangle OHW \cong \triangle$  \_\_\_\_\_

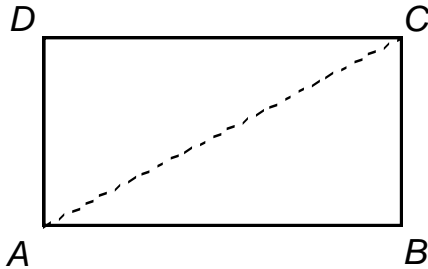
## TRIANGLE CONGRUENCE POSTULATES

Which postulate supports the congruence statement?(if not enough info, write not enough info) \_\_\_\_\_



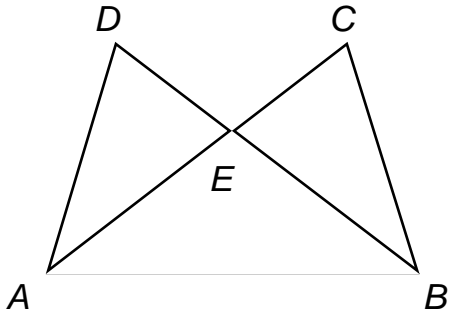
2.  $sAB \parallel sCD$  (hint: transversal?),  $sAD \cong sBC$ ,  $\triangle ABC \cong \triangle$  \_\_\_\_\_

Which postulate supports the congruence statement?(if not enough info, write not enough info) \_\_\_\_\_



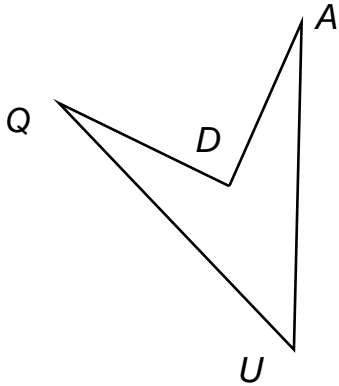
3.  $sAC \cong sBD$ ,  $sAD \cong sBC$ ,  $\triangle ADB \cong \triangle$  \_\_\_\_\_

Which postulate supports the congruence statement? \_\_\_\_\_

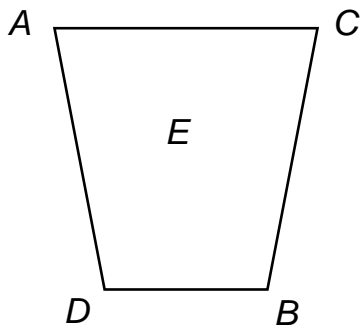


## TRIANGLE CONGRUENCE POSTULATES

5.  $sQD \cong sAD$ ,  $sQU \cong sAU$  If you construct segment  $DU$ , you can show  $\triangle QDU \cong \triangle ADU$ . Which postulate tells you they are congruent? \_\_\_\_\_



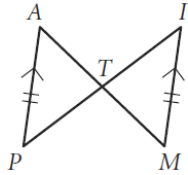
6.  $sAB \cong sCD$ ,  $\angle CDB \cong \angle ABD$   
Which postulate tells you that  $\triangle ABD \cong \triangle CDB$ ? \_\_\_\_\_



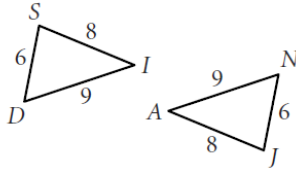
## TRIANGLE CONGRUENCE POSTULATES

In Exercises 1–3, name the conjecture that leads to each congruence.

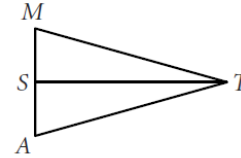
1.  $\triangle PAT \cong \triangle IMT$



2.  $\triangle SID \cong \triangle JAN$



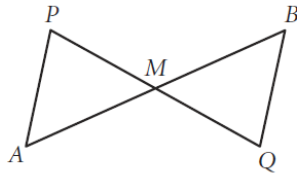
3.  $\overline{TS}$  bisects  $\overline{MA}$ ,  $\overline{MT} \cong \overline{AT}$ , and  $\triangle MST \cong \triangle AST$



In Exercises 4–9, name a triangle congruent to the given triangle and state the congruence conjecture. If you cannot show any triangles to be congruent from the information given, write “cannot be determined” and redraw the triangles so that they are clearly not congruent.

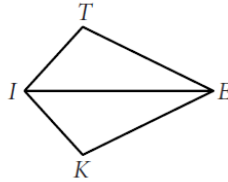
4.  $M$  is the midpoint of  $\overline{AB}$  and  $\overline{PQ}$ .

$\triangle APM \cong \triangle$  \_\_\_\_\_

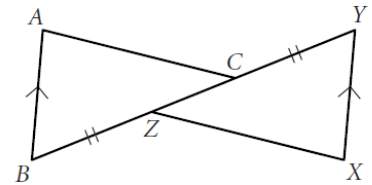


5. KITE is a kite with  $KI = TI$ .

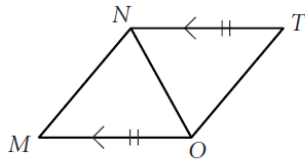
$\triangle KIE \cong \triangle$  \_\_\_\_\_



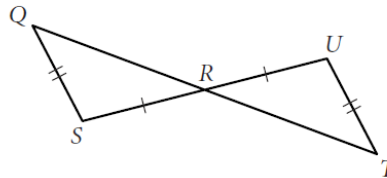
6.  $\triangle ABC \cong$  \_\_\_\_\_



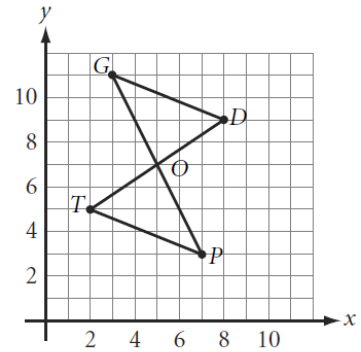
7.  $\triangle MON \cong$  \_\_\_\_\_



8.  $\triangle SQR \cong$  \_\_\_\_\_



9.  $\triangle TOP \cong$  \_\_\_\_\_



10. Which postulate supports each congruence statement?

$\triangle ABH \cong \triangle CBD$  \_\_\_\_\_

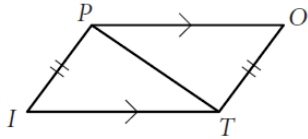
$\triangle HGF \cong \triangle DEF$  \_\_\_\_\_

$\triangle HFB \cong \triangle DFB$  \_\_\_\_\_

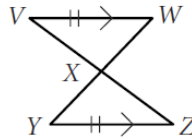
## TRIANGLE CONGRUENCE POSTULATES

In Exercises 1–6, name a triangle congruent to the given triangle and state the congruence conjecture. If you cannot show any triangles to be congruent from the information given, write “cannot be determined” and explain why.

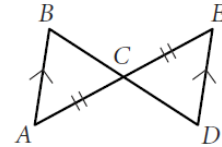
1.  $\triangle PIT \cong \triangle$  \_\_\_\_\_



2.  $\triangle XVW \cong \triangle$  \_\_\_\_\_

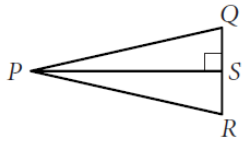


3.  $\triangle ECD \cong \triangle$  \_\_\_\_\_

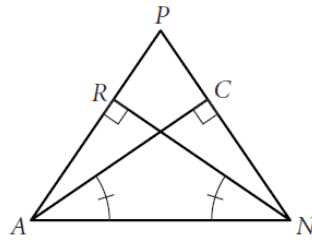


4.  $\overline{PS}$  is the angle bisector of  $\angle QPR$ .

$\triangle PQS \cong \triangle$  \_\_\_\_\_

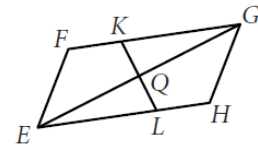


5.  $\triangle ACN \cong \triangle$  \_\_\_\_\_



6.  $EFGH$  is a parallelogram.  
 $GQ = EQ$ .

$\triangle EQL \cong \triangle$  \_\_\_\_\_

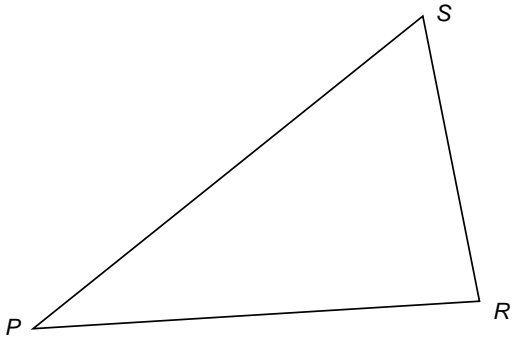




## TRIANGLE CONGRUENCE POSTULATES

### Review:

Construct the  $\triangle ABC$  so that it is congruent to  $\triangle PSR$  using ASA



Construct the  $\triangle ABC$  so that it is congruent to  $\triangle PSR$  using SSS

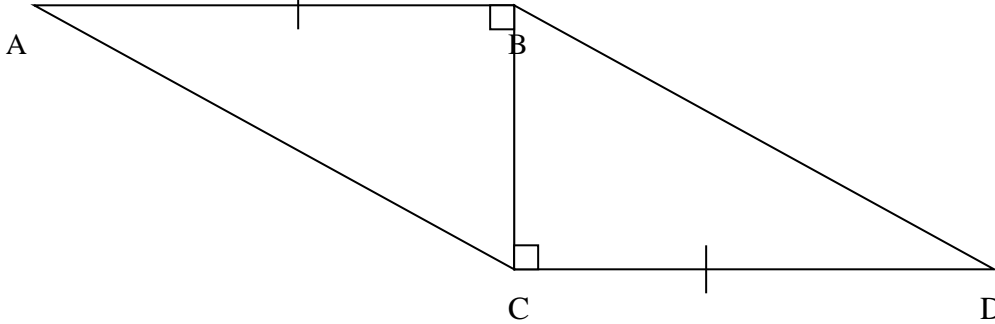
Construct the  $\triangle ABC$  so that it is congruent to  $\triangle PSR$  using SAS

## TRIANGLE CONGRUENCE POSTULATES

### 3.2 CPCTC

1.  $\triangle ABC \cong \triangle \underline{\hspace{2cm}}$ .

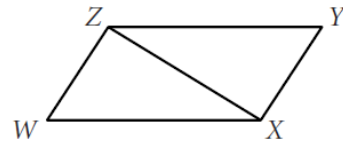
Which postulate supports the congruence statement?                     



Because of                      both triangles are congruent. Which means  $sAC \cong sDB$ ,  $\angle CBD \cong \angle BCA$ , and  $\angle CAB \cong \angle BDC$

1. Give the shorthand name for each of the four triangle congruence conjectures.

In Exercises 2–5, use the figure at right to explain why each congruence is true. WXYZ is a parallelogram.

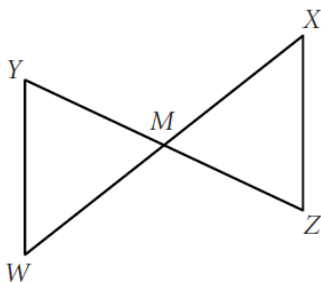


2.  $\angle WXZ \cong \angle YZX$       3.  $\angle WZX \cong \angle YXZ$

4.  $\triangle WZX \cong \triangle YXZ$       5.  $\angle W \cong \angle Y$

For Exercises 6 and 7, mark the figures with the given information. To demonstrate whether the segments or the angles indicated are congruent, determine that two triangles are congruent. Then state which conjecture proves them congruent.

6.  $M$  is the midpoint of  $\overline{WX}$  and  $\overline{YZ}$ . Is  $\overline{YW} \cong \overline{ZX}$ ? Why?



7.  $\triangle ABC$  is isosceles and  $\overline{CD}$  is the bisector of the vertex angle. Is  $\overline{AD} \cong \overline{BD}$ ? Why?

