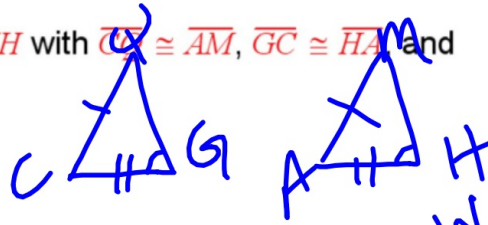


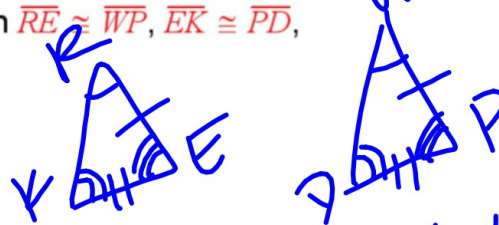
1. Can you prove the triangles are congruent using this information? If yes, give a reason.

a. Given  $\triangle CQG$  and  $\triangle AMH$  with  $\overline{CQ} \cong \overline{AM}$ ,  $\overline{GC} \cong \overline{HA}$ , and  $\angle G \cong \angle H$ .



NO.

b. Given  $\triangle KRE$  and  $\triangle DWP$  with  $\overline{RE} \cong \overline{WP}$ ,  $\overline{EK} \cong \overline{PD}$ ,  $\angle R \cong \angle W$ , and  $\angle K \cong \angle D$ .

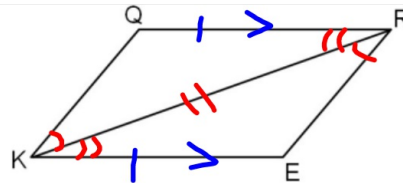


Thm 4-1 These two  $\Delta$ s are  $\cong$ .

2.

Given:  $\overline{QR} \parallel \overline{EK}$  and  $\overline{QR} \cong \overline{EK}$ .

Prove:  $\triangle QRK \cong \triangle EKR$

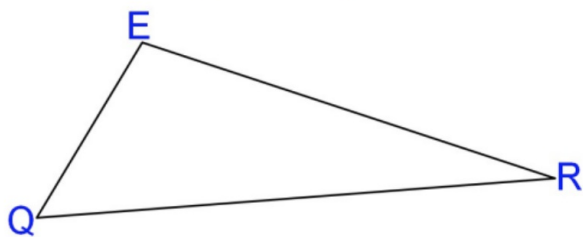


Statement	Reason
1. $\overline{QR} \parallel \overline{EK}$ and $\overline{QR} \cong \overline{EK}$ .	1. Given
2.	2. SAS.

To prove two figures are congruent you must show:

- All pairs of corresponding sides are congruent
- AND
- All pairs of corresponding angles are congruent

"two sides and the included angle of a triangle"



Side

QR

EQ

Side

ER

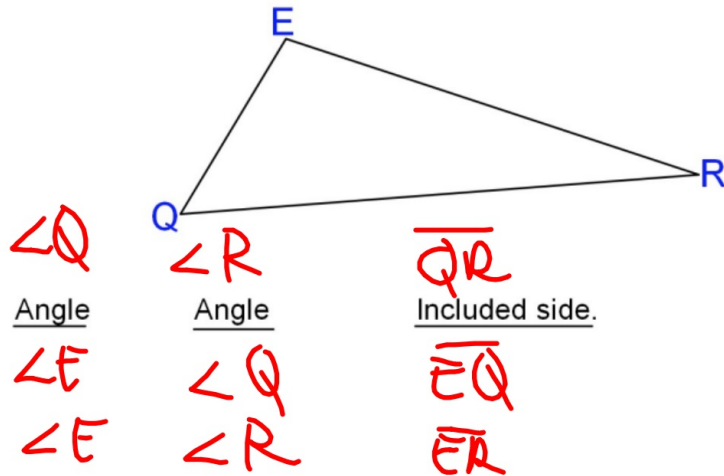
ER

Included Angle

$\angle R$

$\angle E$

"two angles and the included side of a triangle"



1. What sides include  $\angle B$ ?

$\overline{BR}$   $\overline{BG}$

2. What angle is included between  $\overline{GR}$  and  $\overline{RB}$ ?

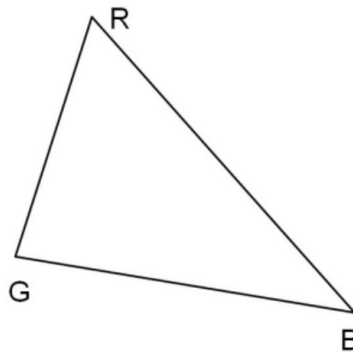
$\angle R$

3. What angles included  $\overline{GB}$ ?

$\angle G$   $\angle B$

4. What side is included between  $\angle R$  and  $\angle B$ ?

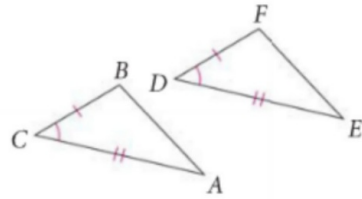
$\overline{RB}$



**Postulate 4-2****Side-Angle-Side (SAS) Postulate**

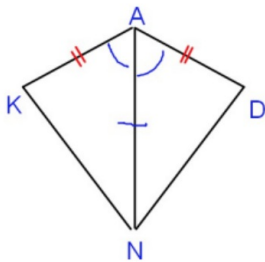
If two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle, then the two triangles are congruent.

$$\triangle BCA \cong \triangle FDE$$



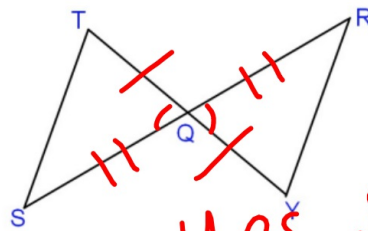
Can you use SAS to prove each pair of triangle congruent?  
If yes, write a congruence statement.

1.  $\overline{AN}$  bisects  $\angle KAD$



Yes

2.  $\overline{RS}$  and  $\overline{TY}$  bisect each other.



yes SAS

**Objective: To prove two triangles congruent using ASA and AAS**

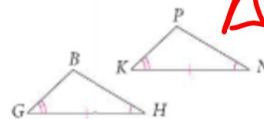
In section 4-2, we learned that two triangles are congruent if all three sides are congruent (SSS) and if two sides and an included angle are congruent (SAS) for each triangle. We have two more 'shortcuts' to learn today about triangle congruency.

**Postulate 4-3: Angle-Side-Angle Postulate (ASA)**

If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then

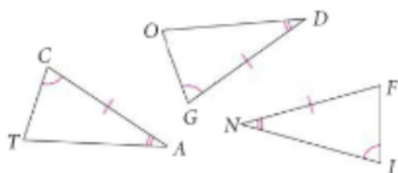
*two  $\Delta$ s are  $\cong$ .*

*$\Delta HGB \cong \Delta NKP$*



**Example 1:** Which triangle is congruent to  $\triangle CAT$  by the ASA Postulate?

(Recall: When you write a congruence, statement remember to list corresponding vertices in the same order.)

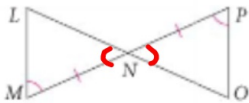


*$\Delta GDO$   
by ASA.*

QC 1: A) Can you conclude that  $\triangle INF$  is congruent to either of the other two triangles? Explain.

NO, the  $\cong$  side is not the included side

B) Can you conclude if the two triangles below are congruent by the ASA Postulate? If so, write a congruence statement. If not, explain why.

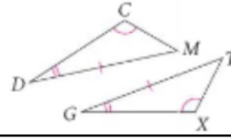


yes ASA  
proves the  
 $\triangle$ s are  $\cong$ .

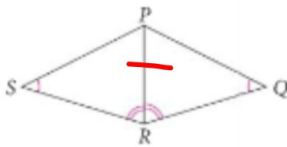
**Theorem 4-2: Angle-Angle-Side Theorem (AAS)**

If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of another triangle, then

the two  $\Delta$ s are  
 $\cong$ .  $\triangle CDM \cong \triangle XGT$

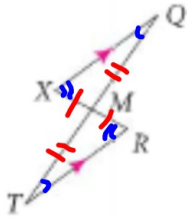


Example 2: Explain why these two triangles are congruent by AAS. Then write a congruence statement.



yes  $\overline{PR} \cong \overline{PR}$   
by Refl. prop.  
by AAS we  
can say they are  
 $\cong$ .

QC 2: Given that  $\overline{XQ} \parallel \overline{TR}$  and that  $\overline{XR}$  bisects  $\overline{QT}$ , show that the two triangles below are congruent by AAS. Then write a congruence statement.



Statements	Reasons.
1. $\overline{XQ} \parallel \overline{TR}$	Given
2. $\overline{XR}$ bisects $\overline{QT}$	"
3. $\angle X \cong \angle R$ $\angle Q \cong \angle T$	Alt int $\angle$ 's.
4. $\triangle XMQ \cong \triangle RMT$	4. AAS.

Hwk #22 - due tomorrow

Sect. 4.3

Pages: 215-217

Problems: 1, 2, 5-7, 13-15, 17-19

IXL #12 - K.1 & K.2 due Friday at 4pm!