

5.5 & 5.6

Name (print first and last) \_\_\_\_\_ Per \_\_\_\_\_ Date: 12/19 due 1/10

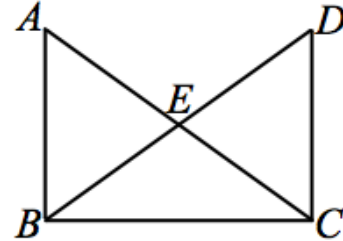
5.5 Congruence: Triangles

Geometry Regents 2013-2014 Ms. Lomac

SLO: I can write proofs involving congruent triangles. I can either (1) look what I'm trying to prove and make a plan to get there OR (2) prove any facts that I can possibly prove and as I go, see if I can find a path to what I am trying to prove.

(1)  Given  $\overline{AB} \perp \overline{BC}$ ,  $\overline{DC} \perp \overline{BC}$ ,  $\overline{DB}$  bisects  $\angle ABC$ ,  $\overline{AC}$  bisects  $\angle DCB$ ,  $\overline{EB} \cong \overline{EC}$

Prove:  $\triangle BEA \cong \triangle CED$

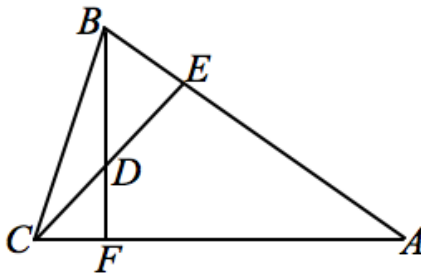


Choose which to use
SAS $\cong$
ASA $\cong$
SSS $\cong$
AAS $\cong$
HL $\cong$

(2)  Given  $\overline{BF} \perp \overline{AC}$ ,  $\overline{CE} \perp \overline{AB}$ ,  $\overline{AE} \cong \overline{AF}$

Prove:  $\triangle ACE \cong \triangle ABF$

<u>Ideas</u>
Reflexive
$\perp$ gives me ___

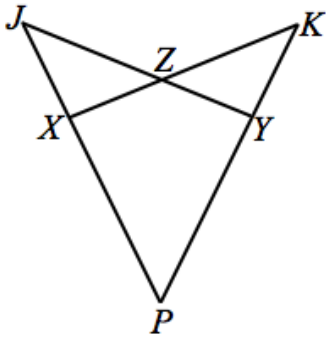


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(3)  Given  $\overline{XJ} \cong \overline{YK}$ ,  $\overline{PX} \cong \overline{PY}$ ,  $\angle ZXJ \cong \angle ZYK$

Prove:  $\overline{JY} \cong \overline{KX}$

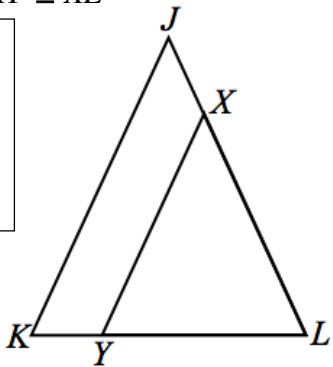
**Ideas**  
Reflexive  
Segment addition  
Linear pair  
sub of = values  
 $\cong \triangle \rightarrow \cong$  parts  
inverse opp.



(4)  Given  $\overline{JK} \cong \overline{JL}$ ,  $\overline{JK} \parallel \overline{XY}$

Prove:  $\overline{XY} \cong \overline{XL}$

**Ideas**  
Sub of = values  
Isos.  $\triangle$  thrm  
Alt int, corres,  
alt ext, etc. . .

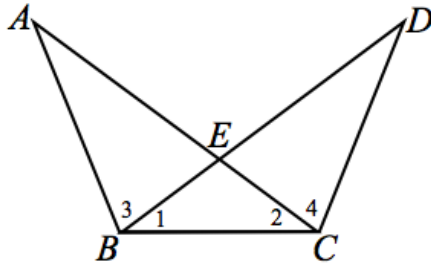


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(5) □ Given:  $\angle 1 \cong \angle 2$ ,  $\angle 3 \cong \angle 4$

Prove:  $\overline{AC} \cong \overline{BD}$

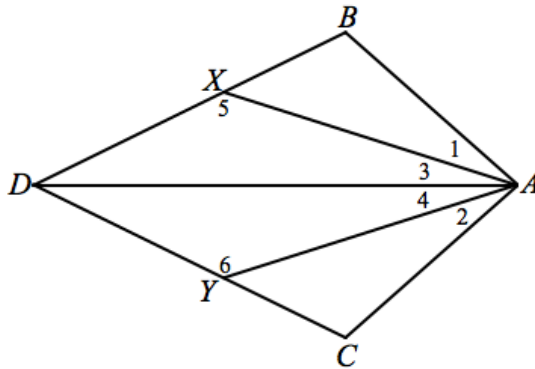
Ideas  
Reflexive  
angle addition  
Linear pair  
sums of  $\angle$ s are =  
 $\cong \Delta \rightarrow \cong$  parts  
inverse opp.  
Sub of = values



(6) □ Given:  $\angle 1 \cong \angle 2$ ,  $\angle 3 \cong \angle 4$ ,  $\overline{AB} \cong \overline{AC}$

Prove:  $\angle 5 \cong \angle 6$  by first proving  $\triangle ABD \cong \triangle ACD$  and then  $\triangle AXD \cong \triangle AYD$

Ideas  
Reflexive  
angle addition  
 $\cong \Delta \rightarrow \cong$  parts



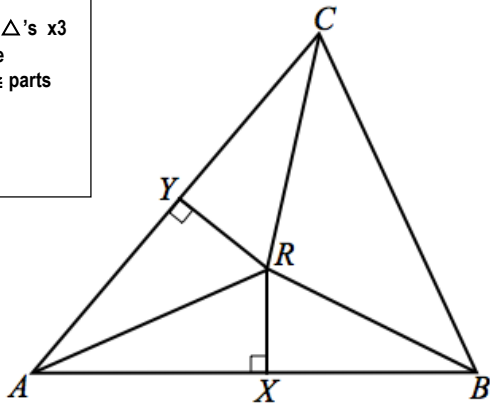
Choose  
which to  
use  
SAS  $\cong$   
ASA  $\cong$   
SSS  $\cong$   
AAS  $\cong$   
HL  $\cong$

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(7)  CHALLENGE Given:  $\overline{RX}$  is the perpendicular bisector of  $\overline{AB}$ ,  $\overline{RY}$  is the perpendicular bisector of  $\overline{AC}$ ,  $\overline{YR} \cong \overline{XR}$ .

Prove:  $\overline{RA} \cong \overline{RB} \cong \overline{RC}$  by first proving that  $\triangle RAX \cong \triangle RAY$

**Ideas**  
Prove  $\cong \Delta$ 's x3  
reflexive  
 $\cong \Delta \rightarrow \cong$  parts



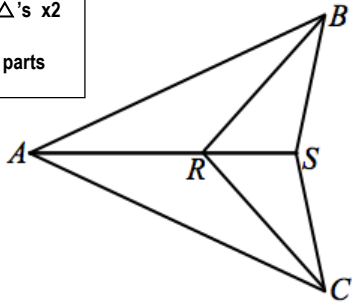
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(8) □ Given:  $\overline{AB} \cong \overline{AC}$ ,  $\overline{RB} \cong \overline{RC}$

Prove:  $\overline{SB} \cong \overline{SC}$

Ideas

Prove  $\cong \Delta$ 's x2  
reflexive  
 $\cong \Delta \rightarrow \cong$  parts



Choose  
which to  
use

SAS $\cong$

ASA $\cong$

SSS $\cong$

AAS $\cong$

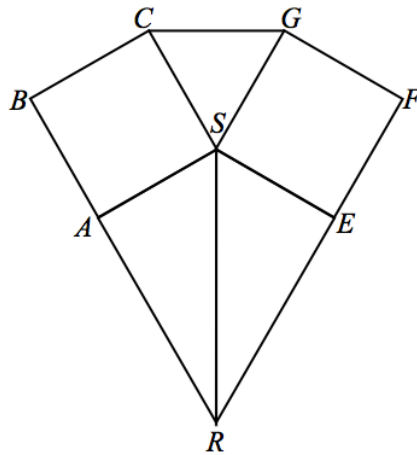
HL $\cong$

(9) □ Given: Square ABCS  $\cong$  Square EFGS, RAB, REF

Prove:  $\triangle ASR \cong \triangle ESR$

Ideas

Square qualities  
reflexive  
Sub of = values

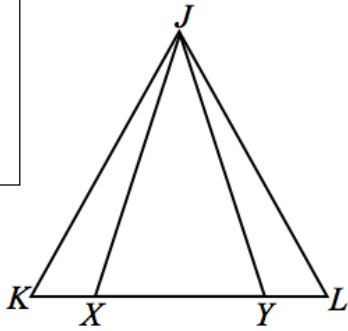


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(10) □ Given:  $\overline{JK} \cong \overline{JL}$ ,  $\overline{JX} \cong \overline{JY}$

Prove:  $\overline{KX} \cong \overline{LY}$

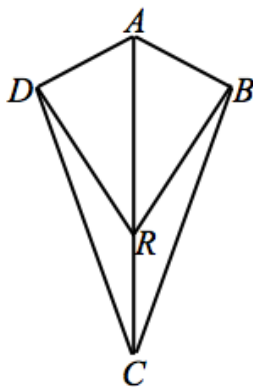
**Ideas**  
Isos.  $\Delta$  thrm.  
Reflexive  
Linear pair  
 $\cong \Delta \rightarrow \cong$  parts



(11) □ Given:  $\overline{AD} \perp \overline{DR}$ ,  $\overline{AB} \perp \overline{BR}$ ,  $\overline{AD} \cong \overline{AB}$

Prove:  $\angle DCR \cong \angle BCR$

**Ideas**  
Reflexive  
 $\cong \Delta \rightarrow \cong$  parts  
 $\perp$  gives me  $\square$





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(14)  CHALLENGE If  $\overline{BE} \cong \overline{CE}$ ,  $\overline{DC} \perp \overline{AB}$ ,  $\overline{BE} \perp \overline{AC}$ , then  $\overline{AE} \cong \overline{RE}$ .

Ideas  
Isos.  $\triangle$  thm.  
Linear pair  
 $\cong \triangle \rightarrow \cong$  parts  
 $\perp$  gives me  $\underline{\hspace{1cm}}$   
Sub of = values  
Inverse opp.  
Triangle sum

