

# Geo H

## Unit 5 Review: Triangles

### 5.1 Angles of Triangles

1) Can you construct the following triangles? If so, sketch an example.

a. Right Equilateral      b. Isosceles Right      c. Equilateral Acute Equiangular      d. Obtuse Scalene

e. Equilateral Obtuse

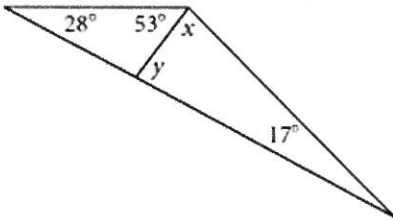
f. Acute Right

g. Isosceles Equilateral

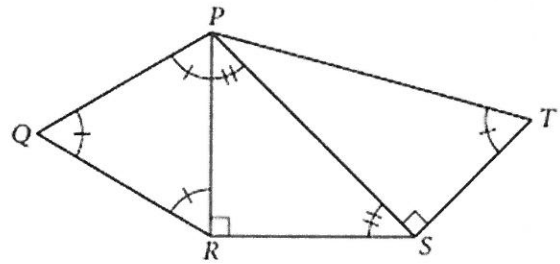
i. Right Scalene

2) Find  $x$  and  $y$ .

$x = \underline{\hspace{2cm}}$ ,  $y = \underline{\hspace{2cm}}$

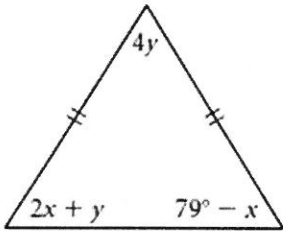


3) Find the measure of  $\angle QPT$ .



4) Find  $x$  and  $y$  (Hint: Set up a system of equations)

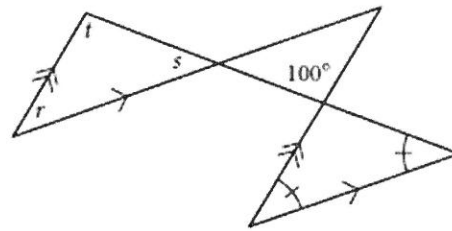
$x = \underline{\hspace{2cm}}$ ,  $y = \underline{\hspace{2cm}}$



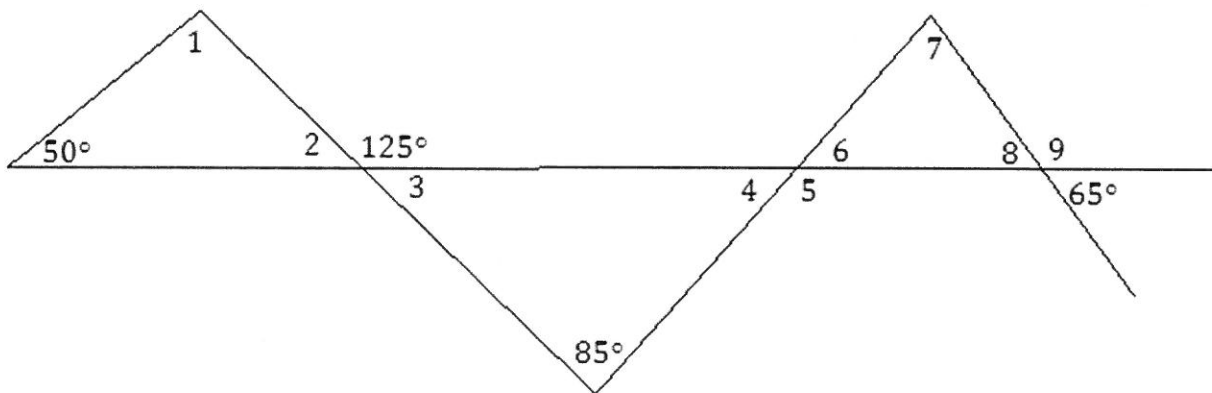
5) Find  $r$ ,  $s$ ,  $t$ .

$r = \underline{\hspace{2cm}}$ ,  $s = \underline{\hspace{2cm}}$ ,

$t = \underline{\hspace{2cm}}$



6)

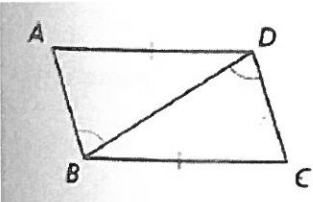


7)  $\triangle GEO \cong \triangle TRI$ ,  $\angle G = 10x + 3y$ ,  $\angle O = 55^\circ$ ,  $\angle R = 5x + 8y$ . Find  $x$  and  $y$ .

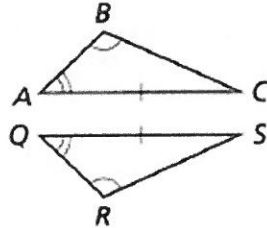
8)  $\triangle PAC \cong \triangle BIG$ ,  $\angle G = 8x + 3y$ ,  $\angle A = 56^\circ$ ,  $\angle B = 54^\circ$ ,  $\angle I = 5x + 8y$ . Find  $x$  and  $y$ .

9) Decide if the triangles congruent. If so, provide a the shortcut that proves they are congruent. Then, write a congruence statement.

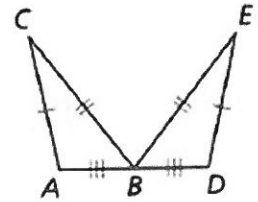
$\triangle ABD$  and  $\triangle CDB$



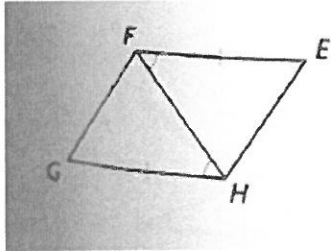
$\triangle ABC$ ,  $\triangle QRS$



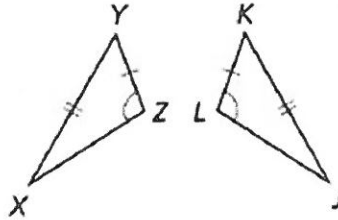
$\triangle ABC$ ,  $\triangle DBE$



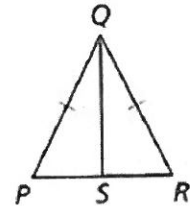
$\triangle EFH$  and  $\triangle GHF$



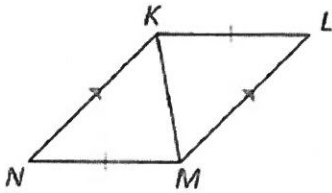
$\triangle XYZ$ ,  $\triangle JKL$



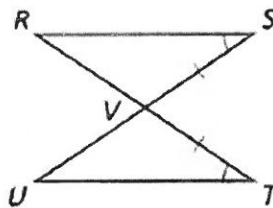
$\triangle PQS$ ,  $\triangle RQS$



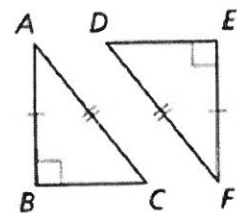
$\triangle KLM$  and  $\triangle MNK$



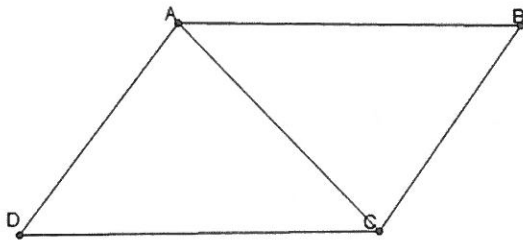
$\triangle RSV$ ,  $\triangle UTV$



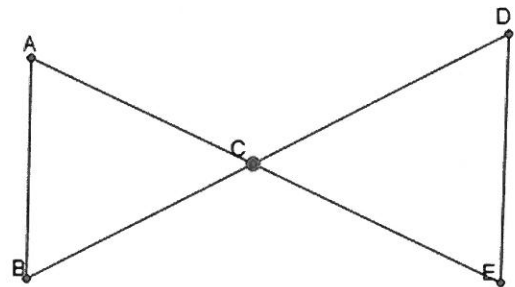
$\triangle ABC$ ,  $\triangle FED$

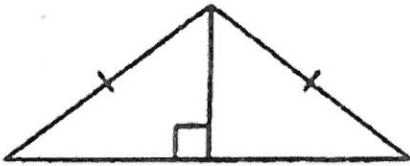
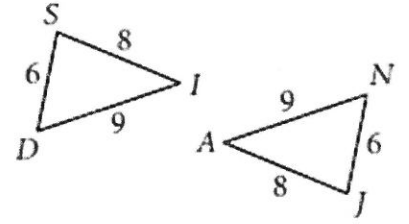
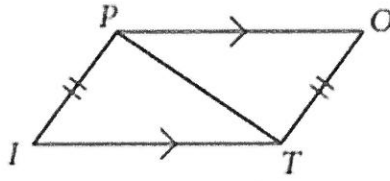
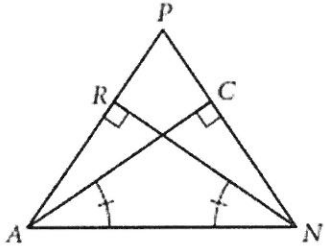


Given:  $AB \parallel DC$  and  $AB = DC$

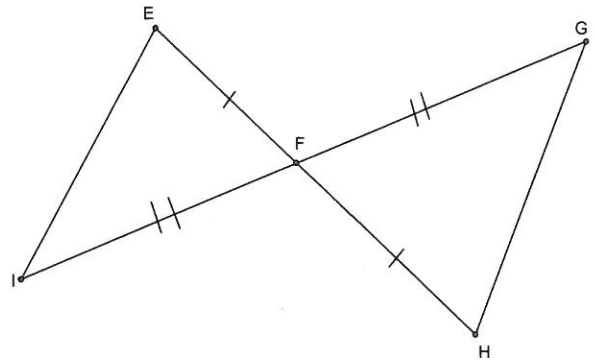
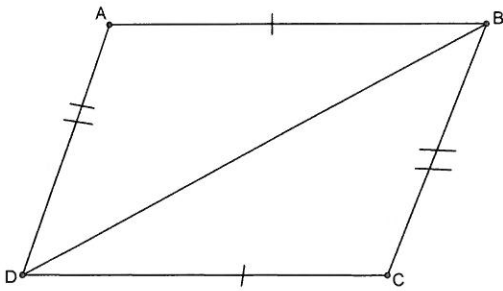
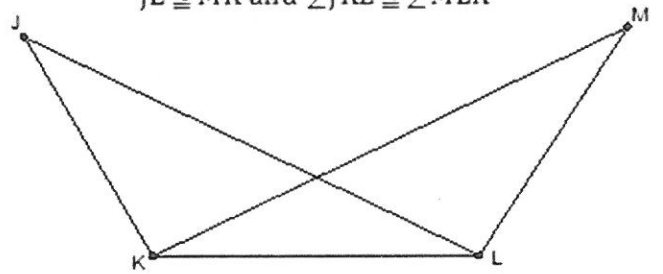


C is the midpoint of  $\overline{AE}$  and  $\overline{DB}$

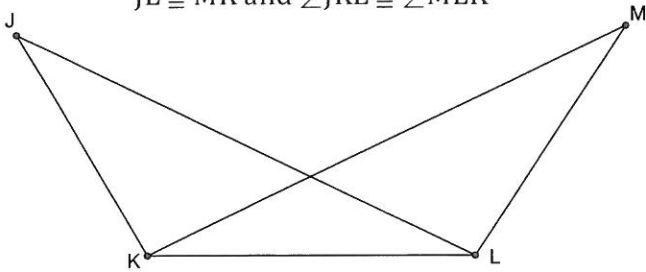




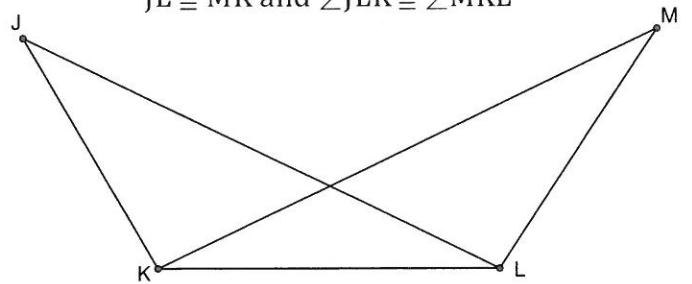
$\overline{JL} \cong \overline{MK}$  and  $\angle JKL \cong \angle MLK$



$\overline{JL} \cong \overline{MK}$  and  $\angle JKL \cong \angle MLK$



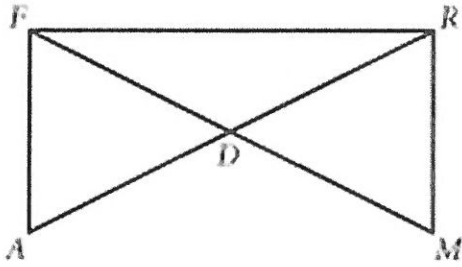
$\overline{JL} \cong \overline{MK}$  and  $\angle JLK \cong \angle MKL$



10) Write a two column proof based off the information below (6 points).

Given: ( $\sphericalangle$  = Angle)  $m\angle A = m\angle M$ ,  $RM = FA$

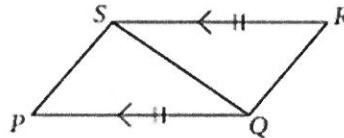
Show: Show triangle FDR is isosceles



11) On a separate piece of paper, prove the following.

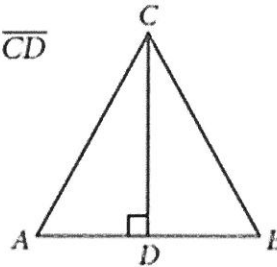
Given:  $\overline{PQ} \parallel \overline{SR}$  and  $\overline{PQ} \cong \overline{SR}$

Show:  $\overline{SP} \cong \overline{QR}$



Given: Isosceles  $\triangle ABC$  with  $\overline{AC} \cong \overline{BC}$  and altitude  $\overline{CD}$

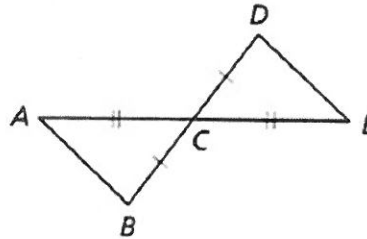
Show:  $\overline{CD}$  is a median



12) Write a two-column proof.

Given: C is the midpoint of  $\overline{AE}$  and  $\overline{BD}$ .

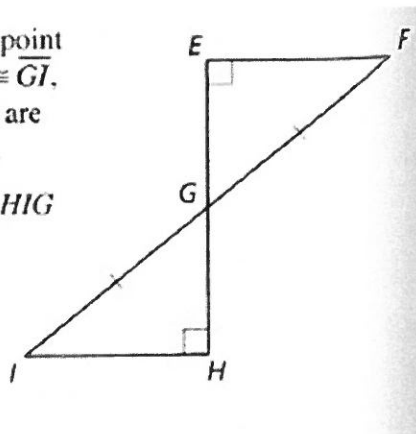
Prove:  $\triangle ABC \cong \triangle EDC$



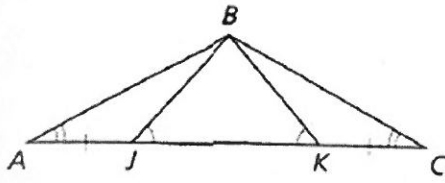
13)

Given  $G$  is the midpoint of  $\overline{EH}$ ,  $\overline{FG} \cong \overline{GI}$ ,  $\angle E$  and  $\angle H$  are right angles.

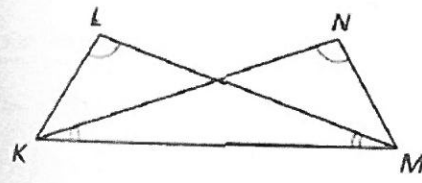
Prove  $\triangle EFG \cong \triangle HIG$



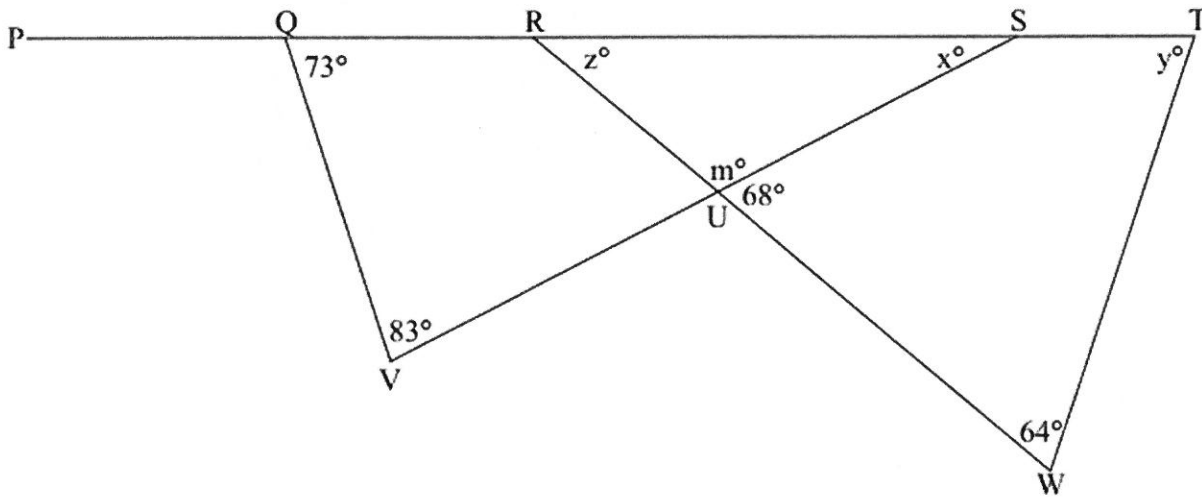
- 14) **Given**  $\overline{AJ} \cong \overline{KC}$ ,  $\angle BJK \cong \angle BKJ$ ,  $\angle A \cong \angle C$   
**Prove**  $\triangle ABK \cong \triangle CBJ$



- Given**  $\angle NKM \cong \angle LMK$ ,  $\angle L \cong \angle N$   
**Prove**  $\triangle NMK \cong \triangle LKM$

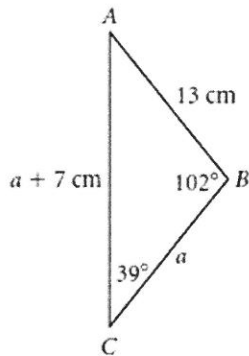


- 15) **Example 3: Determine the measures of all unknown angles in the figure below:**

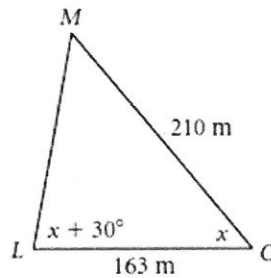


- 16) In Exercises 4–6, find the measures.

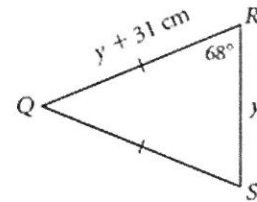
4.  $m\angle A = \underline{\hspace{2cm}}$ , perimeter of  $\triangle ABC = \underline{\hspace{2cm}}$



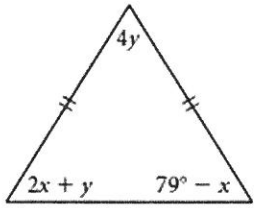
5. The perimeter of  $\triangle LMO$  is 536 m.  $LM = \underline{\hspace{2cm}}$ ,  $m\angle M = \underline{\hspace{2cm}}$



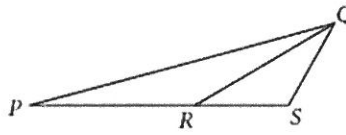
6. The perimeter of  $\triangle QRS$  is 344 cm.  $m\angle Q = \underline{\hspace{2cm}}$ ,  $QR = \underline{\hspace{2cm}}$



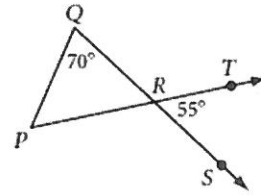
17) 8.  $x = \underline{\hspace{2cm}}$ ,  $y = \underline{\hspace{2cm}}$



9.  $PR = QR$  and  $QS = RS$ .  
If  $m\angle RSQ = 120^\circ$ , what is  $m\angle QPR$ ?

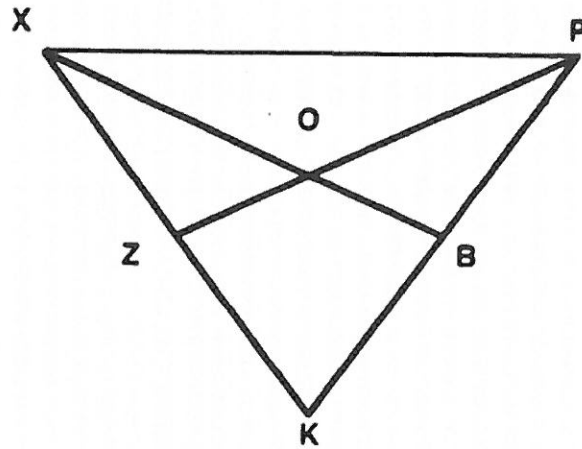


10. Use the diagram to explain why  $\triangle PQR$  is isosceles.



18)

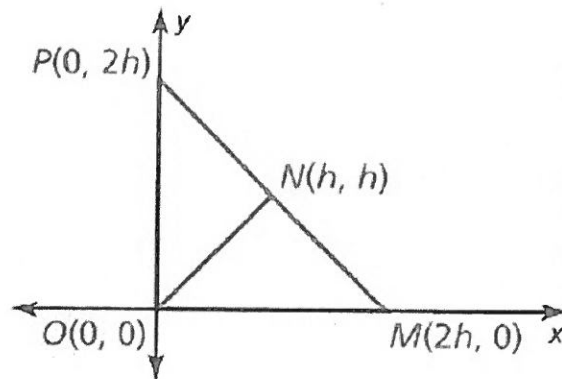
$\overline{XK} \cong \overline{PK}$   
 $\overline{ZK} \cong \overline{BK}$   
 Given:  $\angle OXP \cong \angle OPX$   
 Prove:  $\overline{ZO} \cong \overline{BO}$



19) Write a coordinate proof.

**Given** Coordinates of vertices of  $\triangle NPO$  and  $\triangle NMO$

**Prove**  $\triangle NPO \cong \triangle NMO$



20) **Given** Coordinates of vertices of  $\triangle DEC$  and  $\triangle BOC$

**Prove**  $\triangle DEC \cong \triangle BOC$

