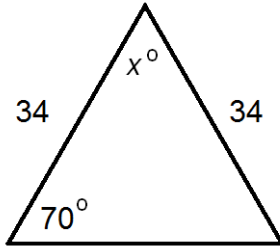


**ANSWERS**

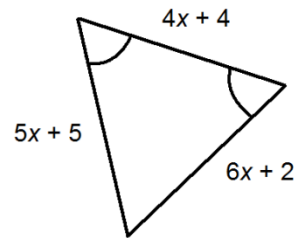
Date \_\_\_\_\_ Period \_\_\_\_\_

**DIRECTIONS:** For #1-5, use the accompanying diagrams to solve for  $x$ . Show work.

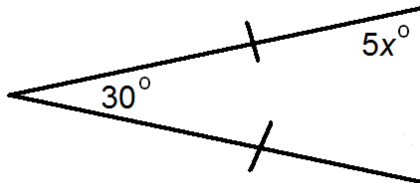
1.  $x = 40$



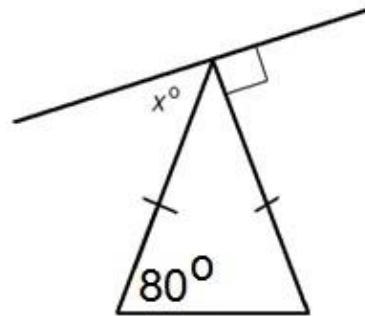
2.  $x = 3$



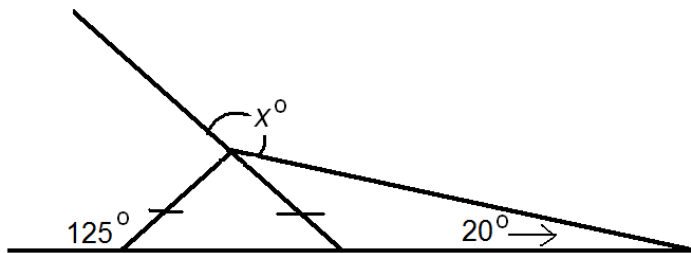
3.  $x = 15$



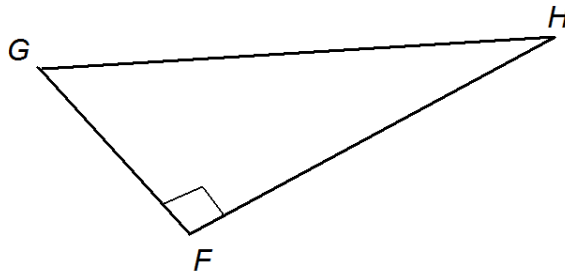
4.  $x = 70$



5.  $x = 145$



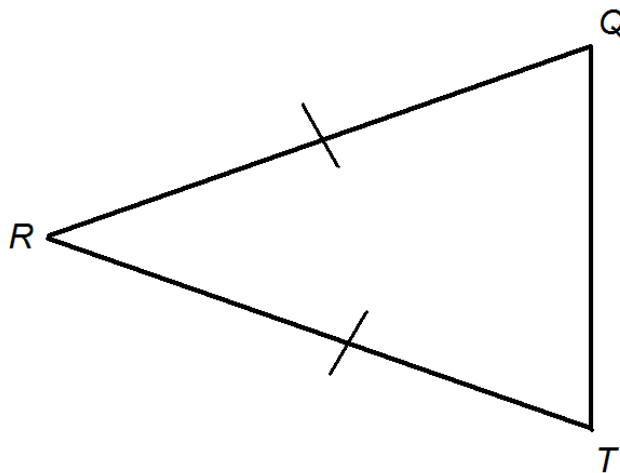
DIRECTIONS: For #6-7, use the following diagram



6. Name the hypotenuse of  $\triangle FGH$ .  $\overline{GH}$

7. Name the legs of  $\triangle FGH$ .  $\overline{FG}$  and  $\overline{FH}$

DIRECTIONS: For #8-11, use the following diagram



8. Name a base angle of  $\triangle QRT$ .  $\sphericalangle Q$  or  $\sphericalangle T$

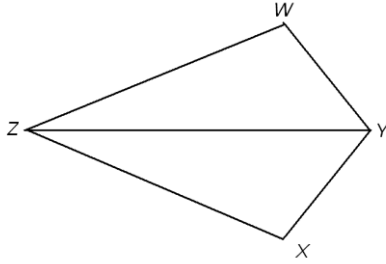
9. Name the base of  $\triangle QRT$ .  $\overline{QT}$

10. Name the vertex angle of  $\triangle QRT$ .  $\sphericalangle R$

11. Name a leg of  $\triangle QRT$ .  $\overline{RT}$  or  $\overline{RQ}$

**DIRECTIONS:** For #12-16, use the given information and diagrams to decide whether or not two triangles must be congruent. If they are, write an accurate congruence statement ( $\triangle LMN \cong \triangle PQR$ , for example) and name the postulate/theorem (SSS, SAS, ASA, AAS, or HL) that justifies your answer. If the triangles are not congruent, write the word “**none**” in both blanks.

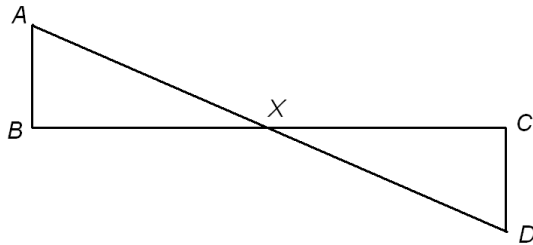
12.  $\overline{YZ}$  bisects  $\angle WYX$ ;  $\overline{WY} \cong \overline{XY}$



$\cong$  triangles are...  **$\triangle WYZ \cong \triangle XYZ$**

justified by... **SAS**

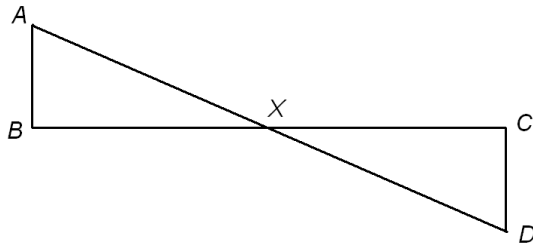
13.  $X$  is the midpoint of  $\overline{BC}$ ;  $\overline{AB} \parallel \overline{DC}$



$\cong$  triangles are...  **$\triangle ABX \cong \triangle CDX$**

justified by... **AAS or ASA**

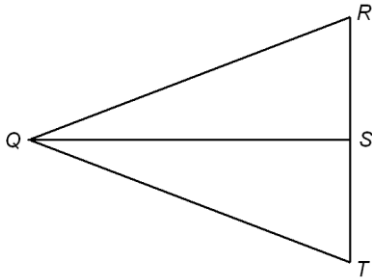
14.  $\overline{AB} \parallel \overline{DC}$



$\cong$  triangles are... **none**

justified by... **none**

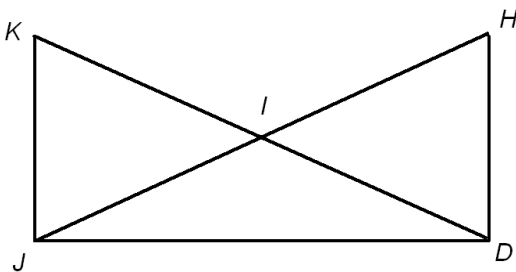
15.  $\overline{QR} \cong \overline{QT}$  ;  $\overline{QS} \perp \overline{RT}$



$\cong$  triangles are...  **$\triangle QRS \cong \triangle QTS$**

justified by... **HL**

16.  $\overline{JK} \cong \overline{DH}$  ;  $\overline{JH} \cong \overline{KD}$

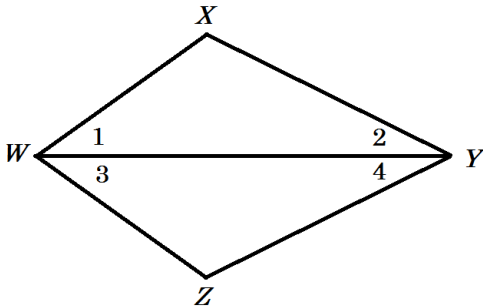


$\cong$  triangles are...  **$\triangle JKD \cong \triangle DHJ$**

justified by... **SAS**

**DIRECTIONS:** For #17-18, write complete two-column proofs. Be neat. Show work on the diagrams.

**17**



**Given:**  $\overline{WY}$  bisects  $\angle XWZ$  ;  
 $\overline{XW} \cong \overline{ZW}$

**Prove:**  $\overline{YW}$  bisects  $\angle XYZ$

1)  $\overline{WY}$  bisects  $\angle XWZ$

2)  $\angle 1 \cong \angle 3$

3)  $\overline{XW} \cong \overline{ZW}$

4)  $\overline{WY} \cong \overline{WY}$

5)  $\triangle WXY \cong \triangle WZY$

6)  $\angle 2 \cong \angle 4$

7)  $\overline{YW}$  bisects  $\angle XYZ$

1) GIVEN

2) Definition of angle ( $\angle$ ) bisector

3) GIVEN

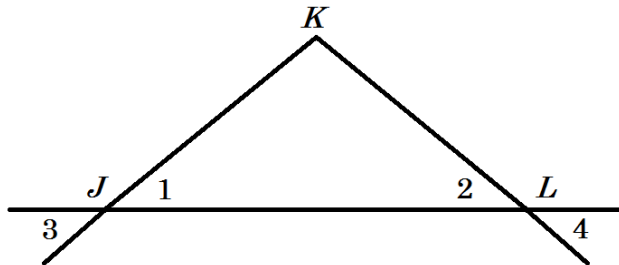
4) Reflexive Property

5) SAS

6) CPCTC

7) Definition of angle ( $\angle$ ) bisector

18



Given:  $\overline{JK} \cong \overline{LK}$  ;  
 Prove:  $\angle 3 \cong \angle 4$

1)  $\overline{JK} \cong \overline{LK}$

2)  $\angle 1 \cong \angle 2$

3)  $\angle 1 \cong \angle 3$

4)  $\angle 2 \cong \angle 4$

5)  $\angle 3 \cong \angle 4$

1) GIVEN

2) Isosceles  $\Delta$  Theorem

3) Vertical  $\angle$ s are  $\cong$

4) Vertical  $\angle$ s are  $\cong$

5) Transitive Property (or Substitution)