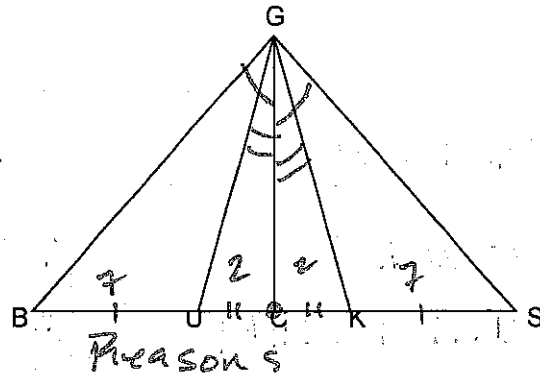


Use the triangle diagram for both questions 1 and 2

1. Given:  $\overline{BU} \cong \overline{KS}$   
 $\overline{UC} \cong \overline{CK}$

Prove: C is the midpoint of  $\overline{BS}$

*Handwritten note:*  $\overline{BC} \cong \overline{CS}$



Statements

- ①  $\overline{BU} \cong \overline{KS}$
- ②  $\overline{UC} \cong \overline{CK}$
- ③  $\overline{BC} \cong \overline{CS}$
- ④ C is midpt of  $\overline{BS}$

- Reasons
- ① Given
  - ② Given
  - ③ Addition Property
  - ④ If a pt cuts a seg into 2  $\cong$  segs, then it is the midpt.

2. Given:  $\angle BGC \cong \angle SGC$   
 $\overline{GC}$  bisects  $\angle UGK$

Prove:  $\angle BGU \cong \angle SGK$

Statements

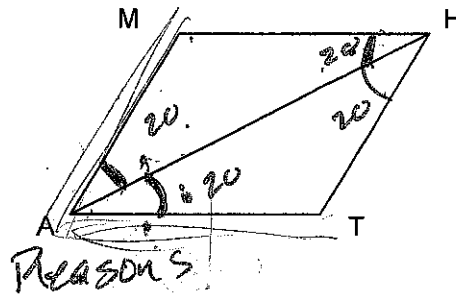
- ①  $\angle BGC \cong \angle SGC$
- ②  $\overline{GC}$  bisects  $\angle UGK$
- ③  $\angle UGC \cong \angle KGC$
- ④  $\angle BGU \cong \angle SGK$

Reasons

- ① Given
- ② Given
- ③ If a ray bisects an angle, it cuts the  $\angle$  into 2  $\cong$  parts.
- ④ Subtraction Property

3. Given:  $\angle MAH \cong \angle MHA$   
 $\overline{AH}$  bisects  $\angle MAT$  and  $\angle THM$   
 Prove:  $\angle MAT \cong \angle THM$

(MULT/DIV)

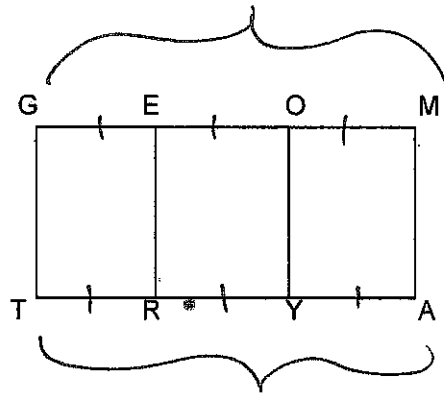


Statements

- ①  $\angle MAH \cong \angle MHA$
- ②  $\overline{AH}$  bis  $\angle MAT$  +  $\angle THM$
- ③  $\angle MAT \cong \angle THM$

- Reasons
- ① Given
  - ② Given
  - ③ If 2  $\angle$ 's are  $\cong$ , then their like multiples are  $\cong$ . (Multiplication)

4. Given:  $\overline{GM} \cong \overline{AT}$   
 $\overline{ER}$  and  $\overline{OY}$  trisect  $\overline{GM}$  and  $\overline{AT}$   
 Prove:  $\overline{GO} \cong \overline{TY}$



Statements

- ①  $\overline{GM} \cong \overline{AT}$
- ②  $\overline{ER}$  +  $\overline{OY}$  trisect  $\overline{GM}$  +  $\overline{AT}$
- ③  $\overline{GO} \cong \overline{TY}$

Reasons

- ① Given
- ② Given
- ③ If segments are  $\cong$ , then their like divisions are  $\cong$ . (Division Property)

$\overline{GM} + \overline{AT}$

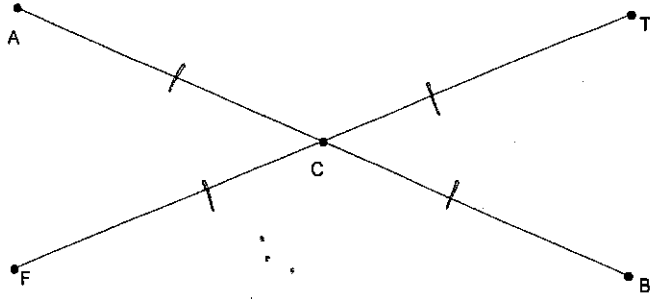
5.

Given:  $\overline{AB} \cong \overline{FT}$

$\overline{AB}$  bisects  $\overline{FT}$

$\overline{FT}$  bisects  $\overline{AB}$

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



Statements	Reasons
① $\overline{AB} \cong \overline{FT}$	① Given
② $\overline{AB}$ bisects $\overline{FT}$	② Given
③ $\overline{FT}$ bisects $\overline{AB}$	③ Given
④ $\overline{AC} \cong \overline{CT}$	④ If 2 $\angle$ 's are $\cong$ , then their like divisions are $\cong$ (Division Property)

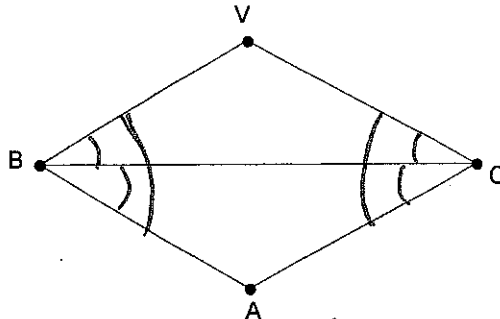
6.

Given:  $\overline{BC}$  bisects  $\angle VBA$

$\overline{CB}$  bisects  $\angle VCA$

$\angle VBA \cong \angle VCA$

Prove:  $\angle VBC \cong \angle ACB$

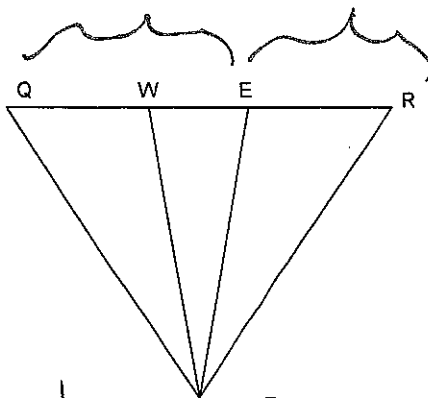


Statements	Reasons
① $\overline{BC}$ bisects $\angle VBA$	① Given
② $\overline{CB}$ bisects $\angle VCA$	② Given
③ $\angle VBA \cong \angle VCA$	③ Given

7.

Given:  $\overline{QE} \cong \overline{WR}$

Prove:  $\overline{QW} \cong \overline{ER}$



Statements

Reasons

①  $\overline{QE} \cong \overline{WR}$

① Given

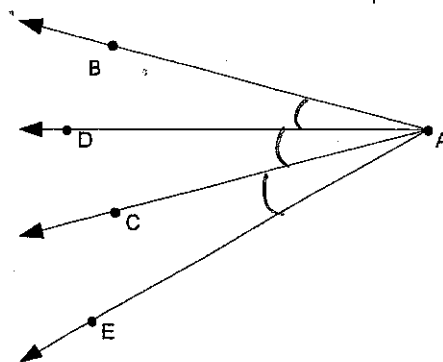
②  $\overline{QW} \cong \overline{ER}$

② Subtraction Property

8.

Given:  $\overrightarrow{AD}$  bisects  $\angle BAC$   $\overrightarrow{AC}$  bisects  $\angle DAE$

Prove:  $\angle BAD \cong \angle CAE$



Statements

Reasons

①  $\overrightarrow{AD}$  bisects  $\angle BAC$

① Given

②  $\overrightarrow{AC}$  bisects  $\angle DAE$

② Given

③  $\angle BAD \cong \angle DAC$

③ If a ray bis. an angle, it cuts the  $\angle$  into 2  $\cong$  parts

④  $\angle DAC \cong \angle CAE$

④ Same as 3

⑤  $\angle BAD \cong \angle CAE$

⑤ Transitive Property

9.

Given:

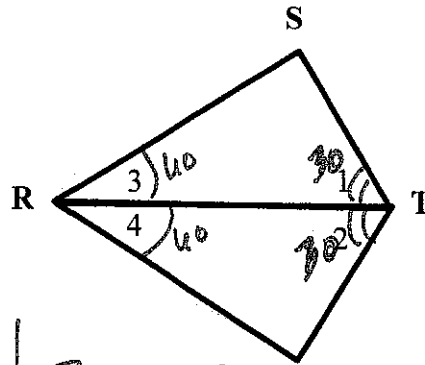
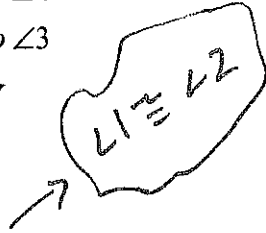
$\angle 1$  is comp. to  $\angle 4$

$\angle 2$  is comp. to  $\angle 3$

$\overline{RT}$  bis  $\angle SRV$

Prove:

$\overline{TR}$  bis  $\angle STV$



Statements	Reasons
① $\angle 1$ is comp. to $\angle 4$	① Given
② $\angle 2$ is comp. to $\angle 3$	② Given
③ $\overline{RT}$ bis. $\angle SRV$	③ Given
④ $\angle 3 \cong \angle 4$	④ If a ray bisects an $\angle$ , it cuts into 2 $\cong$ parts
⑤ $\angle 1 \cong \angle 2$	⑤ If 2 $\angle$ 's are comp. to $\cong$ $\angle$ 's, then they are $\cong$
⑥ $\overline{TR}$ bis $\angle STV$	⑥ If a ray cuts an angle into 2 $\cong$ $\angle$ 's, then the ray is a bisector.

10. The supplement of an angle is 12 more than twice its complement. Find the supplement.

$$180 - x = 2(90 - x) + 12$$

$$180 - x = 180 - 2x + 12$$

$$x = 12^\circ$$

Complement =  $78^\circ$

Supplement =  $168^\circ$

Handwritten notes on the left side of the page, including a list of items and a small table.

1	2	3
4	5	6
7	8	9
10	11	12

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13	14	15
16	17	18
19	20	21
22	23	24

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