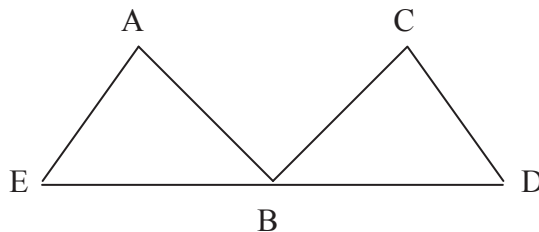


Geometry Worksheet  
 Congruent Triangles #3

Name: \_\_\_\_\_

Complete the proofs.

1. Given:  $\overline{AE} \cong \overline{CB}$ ,  $\overline{AB} \cong \overline{CD}$ ,  
 and B is the midpoint of  $\overline{ED}$

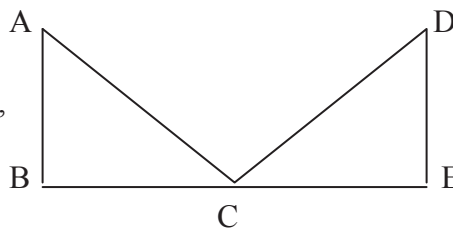


Prove:  $\triangle AEB \cong \triangle CBD$

(Hint: Draw the information on the picture as you know it.)

statements	reasons
1. $\overline{AE} \cong \overline{CB}$ , $\overline{AB} \cong \overline{CD}$ , and B is the midpoint of $\overline{ED}$	1.
2. $\overline{EB} \cong \overline{DB}$	2.
3. $\triangle AEB \cong \triangle CBD$	3.

2. Given:  $\overline{AB} \perp \overline{BE}$ ,  $\overline{DE} \perp \overline{BE}$ ,  $\overline{AC} \cong \overline{DC}$ ,  
 and  $\angle BAC \cong \angle EDC$



Prove:  $\triangle ABC \cong \triangle DEC$

statements	reasons
1. $\overline{AB} \perp \overline{BE}$ , $\overline{DE} \perp \overline{BE}$ , $\overline{AC} \cong \overline{DC}$ , and $\angle BAC \cong \angle EDC$	1.
2. $\angle B$ and $\angle E$ are right angles	2.
3. $\angle B \cong \angle E$	3.
4. $\triangle ABC \cong \triangle DEC$	4.

(over)

3. Given:  $\overline{GK} \cong \overline{ML}$ ,  $\angle GKM \cong \angle LMK$

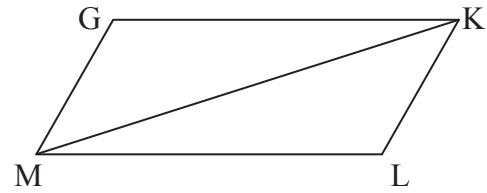
Prove:  $\triangle GKM \cong \triangle LMK$

statements

1.  $\overline{GK} \cong \overline{ML}$ ,  $\angle GKM \cong \angle LMK$

2.  $\overline{MK} \cong \overline{MK}$

3.  $\triangle GKM \cong \triangle LMK$



reasons

1.

2.

3.

4. Given:  $\angle S \cong \angle R$  and  $\overline{XT}$  bisects  $\angle SXR$

Prove:  $\triangle SXT \cong \triangle RXT$

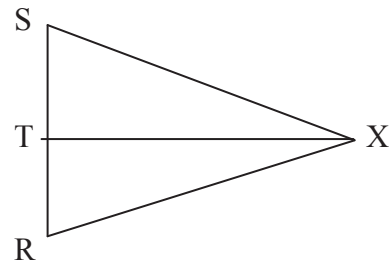
statements

1.  $\angle S \cong \angle R$  and  $\overline{XT}$  bisects  $\angle SXR$

2.  $\angle SXT \cong \angle RXT$

3.  $\overline{XT} \cong \overline{XT}$

4.  $\triangle SXT \cong \triangle RXT$



reasons

1.

2.

3.

4.

5. Given:  $\overline{FT} \cong \overline{FR}$  and  $\overline{ST} \cong \overline{SR}$

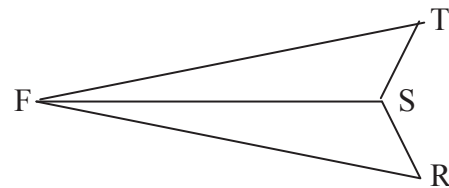
Prove:  $\triangle FTS \cong \triangle FRS$

statements

1.  $\overline{FT} \cong \overline{FR}$  and  $\overline{ST} \cong \overline{SR}$

2.

3.



reasons

1.

2.

3.

6. Given: H is the midpoint of  $\overline{MK}$  and  $\overline{QD}$

Prove:  $\triangle QMH \cong \triangle DKH$

statements

1.

2.  $\overline{MH} \cong \overline{KH}$  and  $\overline{QH} \cong \overline{DH}$

3.  $\angle MHQ \cong \angle KHD$

4.

7. Given:  $\overline{SQ}$  bisects  $\angle PSR$  and  $\angle P \cong \angle R$

Prove:  $\triangle SQP \cong \triangle SQR$

statements

1.  $\overline{SQ}$  bisects  $\angle PSR$  and  $\angle P \cong \angle R$

2.

3.

4.  $\triangle SQP \cong \triangle SQR$

8. Given:  $\overline{RT}$  bisects  $\angle QRS$ ,  $\angle 1 \cong \angle 2$

Prove:  $\triangle RTQ \cong \triangle RTS$

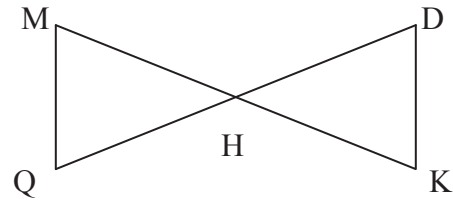
statements

1.  $\overline{RT}$  bisects  $\angle QRS$ ,  $\angle 1 \cong \angle 2$

2.  $\angle QRT \cong \angle SRT$

3.  $\overline{RT} \cong \overline{RT}$

4.  $\triangle RTQ \cong \triangle RTS$



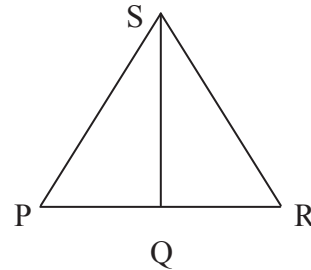
reasons

1. Given

2.

3.

4.



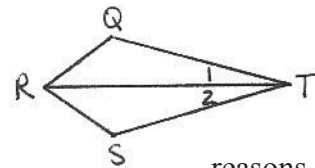
reasons

1.

2. Definition of bisect

3.

4.



reasons

1.

2.

3.

4.

(over)

9. Given:  $\overline{TP} \perp \overline{AS}$ ,  $\overline{AP} \cong \overline{SP}$

Prove:  $\triangle ATP \cong \triangle STP$

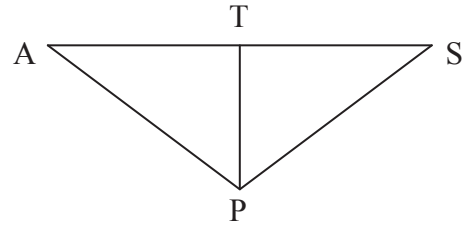
statements

1.  $\overline{TP} \perp \overline{AS}$ ,  $\overline{AP} \cong \overline{SP}$

2.  $\angle ATP$  and  $\angle STP$  are right angles

3. \_\_\_\_\_

4.  $\triangle ATP \cong \triangle STP$



reasons

1.

2.

3.

4.

10. Given:  $\overline{BR}$  and  $\overline{EV}$  bisect each other

Prove:  $\triangle BAE \cong \triangle RAV$

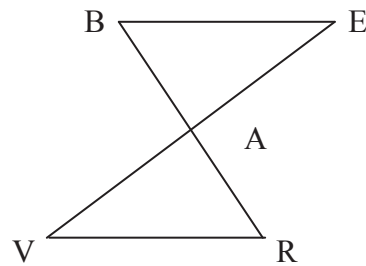
statements

1.

2.  $\overline{BA} \cong \overline{RA}$  and  $\overline{EA} \cong \overline{VA}$

3.  $\angle BAE \cong \angle RAV$

4.  $\triangle BAE \cong \triangle RAV$



reasons

1. Given

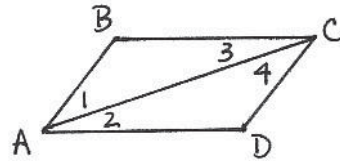
2.

3.

4.

11. Given:  $\angle 2 \cong \angle 3$ ,  $\angle 1 \cong \angle 4$

Prove:  $\triangle ABC \cong \triangle CDA$



statements

reasons

1.  $\angle 2 \cong \angle 3$ ,  $\angle 1 \cong \angle 4$

1.

2.

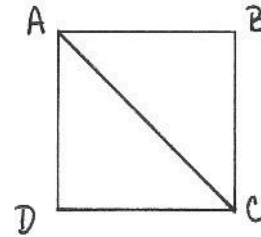
2.

3.

3.

12. Given:  $\angle D$  and  $\angle B$  are right angles,  $\overline{AD} \cong \overline{CB}$

Prove:  $\triangle ABC \cong \triangle CDA$



statements

reasons

1.  $\angle D$  and  $\angle B$  are right angles,  $\overline{AD} \cong \overline{CB}$

1.

2.

2.

3.

3.

4.  $\triangle ABC \cong \triangle CDA$

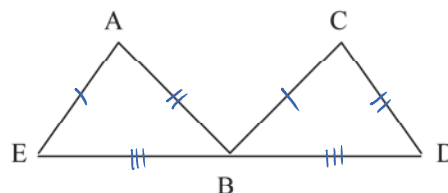
4.

Geometry Worksheet  
Congruent Triangles #3

Name: \_\_\_\_\_

Complete the proofs.

1. Given:  $\overline{AE} \cong \overline{CB}$ ,  $\overline{AB} \cong \overline{CD}$ ,  
and B is the midpoint of  $\overline{ED}$



Prove:  $\triangle AEB \cong \triangle CBD$

(Hint: Draw the information on the picture as you know it.)

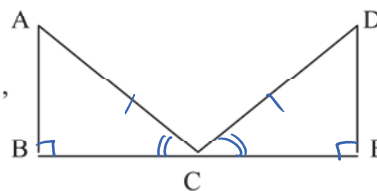
\_\_\_\_\_ statements \_\_\_\_\_

\_\_\_\_\_ reasons \_\_\_\_\_

1.  $\overline{AE} \cong \overline{CB}$ ,  $\overline{AB} \cong \overline{CD}$ ,  
and B is the midpoint of  $\overline{ED}$
2.  $\overline{EB} \cong \overline{DB}$
3.  $\triangle AEB \cong \triangle CBD$

1. given
2. midpoint cuts in half
3. by SSS

2. Given:  $\overline{AB} \perp \overline{BE}$ ,  $\overline{DE} \perp \overline{BE}$ ,  $\overline{AC} \cong \overline{DC}$ ,  
and  $\angle BAC \cong \angle EDC$



Prove:  $\triangle ABC \cong \triangle DEC$

\_\_\_\_\_ statements \_\_\_\_\_

\_\_\_\_\_ reasons \_\_\_\_\_

1.  $\overline{AB} \perp \overline{BE}$ ,  $\overline{DE} \perp \overline{BE}$ ,  $\overline{AC} \cong \overline{DC}$ ,  
and  $\angle BAC \cong \angle EDC$
2.  $\angle B$  and  $\angle E$  are right angles
3.  $\angle B \cong \angle E$
4.  $\triangle ABC \cong \triangle DEC$

1. given
2. perpendicular
3. both  $90^\circ$
4. by AAS

(over)

3. Given:  $\overline{GK} \cong \overline{ML}$ ,  $\angle GKM \cong \angle LMK$

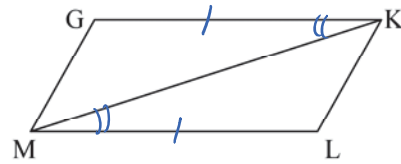
Prove:  $\triangle GKM \cong \triangle LMK$

statements

1.  $\overline{GK} \cong \overline{ML}$ ,  $\angle GKM \cong \angle LMK$

2.  $\overline{MK} \cong \overline{MK}$

3.  $\triangle GKM \cong \triangle LMK$



reasons

1. given

2. shared

3. by SAS

4. Given:  $\angle S \cong \angle R$  and  $\overline{XT}$  bisects  $\angle SXR$

Prove:  $\triangle SXT \cong \triangle RXT$

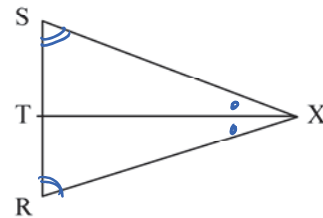
statements

1.  $\angle S \cong \angle R$  and  $\overline{XT}$  bisects  $\angle SXR$

2.  $\angle SXT \cong \angle RXT$

3.  $\overline{XT} \cong \overline{XT}$

4.  $\triangle SXT \cong \triangle RXT$



reasons

1. given

2. bisected angle

3. shared side

4. by AAS

5. Given:  $\overline{FT} \cong \overline{FR}$  and  $\overline{ST} \cong \overline{SR}$

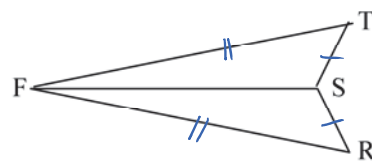
Prove:  $\triangle FTS \cong \triangle FRS$

statements

1.  $\overline{FT} \cong \overline{FR}$  and  $\overline{ST} \cong \overline{SR}$

2.  $\overline{FS} \cong \overline{FS}$

3.  $\triangle FTS \cong \triangle FRS$



reasons

1. given

2. shared

3. by SSS

6. Given: H is the midpoint of  $\overline{MK}$  and  $\overline{QD}$

Prove:  $\triangle QMH \cong \triangle DKH$

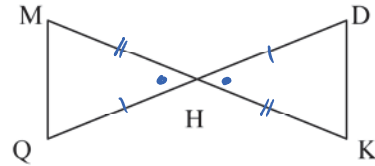
statements

1. H is Midpoint of MK and QD

2.  $\overline{MH} \cong \overline{KH}$  and  $\overline{QH} \cong \overline{DH}$

3.  $\angle MHQ \cong \angle KHD$

4.  $\triangle MHQ \cong \triangle KHD$



reasons

1. Given

2. bisected sides

3. opposite angles

4. by SAS

7. Given:  $\overline{SQ}$  bisects  $\angle PSR$  and  $\angle P \cong \angle R$

Prove:  $\triangle SQP \cong \triangle SQR$

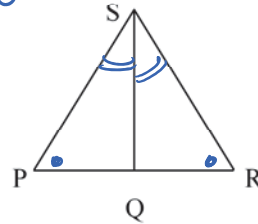
statements

1.  $\overline{SQ}$  bisects  $\angle PSR$  and  $\angle P \cong \angle R$

2.  $\angle PSQ = \angle RSQ$

3.  $SQ = SQ$

4.  $\triangle SQP \cong \triangle SQR$



reasons

1. given

2. Definition of bisect

3. shared

4. by AAS

8. Given:  $\overline{RT}$  bisects  $\angle QRS$ ,  $\angle 1 \cong \angle 2$

Prove:  $\triangle RTQ \cong \triangle RTS$

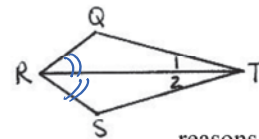
statements

1.  $\overline{RT}$  bisects  $\angle QRS$ ,  $\angle 1 \cong \angle 2$

2.  $\angle QRT \cong \angle SRT$

3.  $\overline{RT} \cong \overline{RT}$

4.  $\triangle RTQ \cong \triangle RTS$



reasons

1. given

2. bisected angle

3. shared

4. by ~~AAS~~  
ASA

(over)

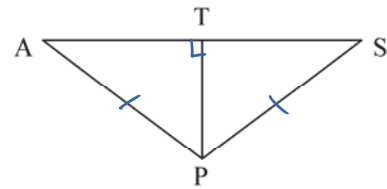


9. Given:  $\overline{TP} \perp \overline{AS}$ ,  $\overline{AP} \cong \overline{SP}$

Prove:  $\triangle ATP \cong \triangle STP$

statements

1.  $\overline{TP} \perp \overline{AS}$ ,  $\overline{AP} \cong \overline{SP}$
2.  $\angle ATP$  and  $\angle STP$  are right angles
3.  $\angle S = \angle A$
  
4.  $\triangle ATP \cong \triangle STP$



reasons

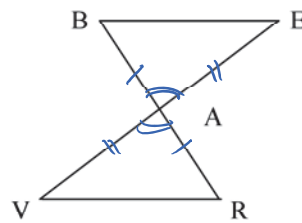
1. given
2. perpendicular
3. isosceles  $\triangle ASP$  with  $AP = SP$
  
4. by AAS

10. Given:  $\overline{BR}$  and  $\overline{EV}$  bisect each other

Prove:  $\triangle BAE \cong \triangle RAV$

statements

1.  $\overline{BR}$  and  $\overline{EV}$  bisect each other
2.  $\overline{BA} \cong \overline{RA}$  and  $\overline{EA} \cong \overline{VA}$
3.  $\angle BAE \cong \angle RAV$
4.  $\triangle BAE \cong \triangle RAV$



reasons

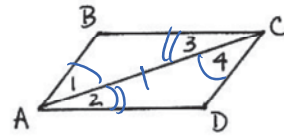
1. Given
2. Definition of bisect
3. opposite angles
4. by SAS

11. Given:  $\angle 2 \cong \angle 3$ ,  $\angle 1 \cong \angle 4$

Prove:  $\triangle ABC \cong \triangle CDA$

statements

1.  $\angle 2 \cong \angle 3$ ,  $\angle 1 \cong \angle 4$
2.  $AC = AC$
3.  $\triangle ABC \cong \triangle CDA$



reasons

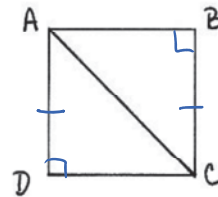
1. given
2. shared
3. by ASA

12. Given:  $\angle D$  and  $\angle B$  are right angles,  $\overline{AD} \cong \overline{CB}$

Prove:  $\triangle ABC \cong \triangle CDA$

statements

1.  $\angle D$  and  $\angle B$  are right angles,  $\overline{AD} \cong \overline{CB}$
2.  $AC = AC$
3.  $AB = DC$
4.  $\triangle ABC \cong \triangle CDA$



reasons

1. given
2. shared
3. since Pythag Th. will find the same ANSWER
4. by SSS