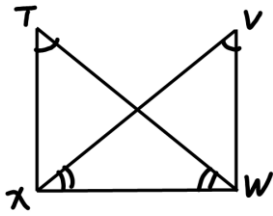


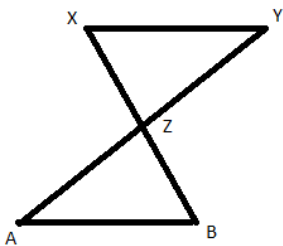
Homework 2.4 Proofs

1. Given: $\angle T \cong \angle V$, $\angle TWX \cong \angle VXW$



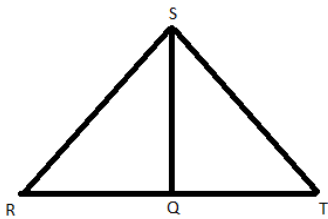
Statement	Reason
1.	1.
2.	2.
3.	3. Reflexive Property
4. $\triangle TWX \cong \triangle VXW$	4.

2. Given: $\overline{XY} \parallel \overline{AB}$, Z is the midpoint of \overline{AY}



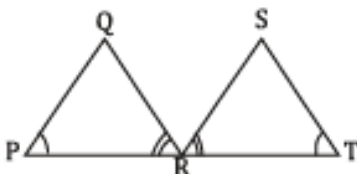
Statement	Reason
1. $\overline{XY} \parallel \overline{AB}$	1.
2.	2.
3.	3.
4. Z is the mdpt. of \overline{AY}	4.
5.	5.
6. $\triangle XYZ \cong \triangle BAZ$	6.

3. Given: $\overline{SQ} \perp \overline{RT}$, \overline{QS} bisects $\angle RST$



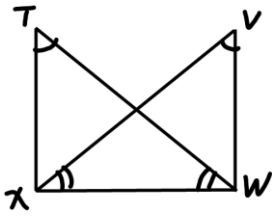
Statement	Reason
1.	1.
2. $\angle RQS$ and $\angle TQS$ are rt. angles	2.
3.	3. Right angle congruence
4.	4.
5.	5.
6.	6.
7. $\triangle RSQ \cong \triangle TSQ$	7.

4. Given: R is the midpoint of \overline{PT} , $\angle P \cong \angle T$, $\angle PRQ \cong \angle TRS$



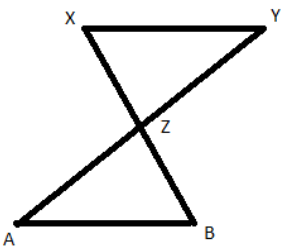
Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5. $\triangle PRQ \cong \triangle TRS$	5.

1. Given: $\angle T \cong \angle V$, $\angle TWX \cong \angle VXW$



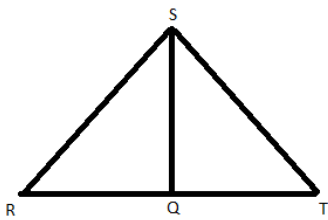
Statement	Reason
1. $\angle T \cong \angle V$	1. Given
2. $\angle TWX \cong \angle VXW$	2. Given
3. $\overline{WX} \cong \overline{XW}$	3. Reflexive Property
4. $\triangle TWX \cong \triangle VXW$	4. AAS

2. Given: $\overline{XY} \parallel \overline{AB}$, Z is the midpoint of \overline{AY}



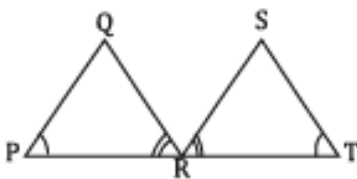
Statement	Reason
1. $\overline{XY} \parallel \overline{AB}$	1. Given
2. $\angle X \cong \angle B$	2. Alternate Interior angles
3. $\angle A \cong \angle Y$	3. Alternate Interior angles
4. Z is the mdpt. of \overline{AY}	4. Given
5. $\overline{YZ} \cong \overline{AZ}$	5. Definition of a midpoint
6. $\triangle XYZ \cong \triangle BAZ$	6. AAS

3. Given: $\overline{SQ} \perp \overline{RT}$, \overline{QS} bisects $\angle RST$



Statement	Reason
1. $\overline{SQ} \perp \overline{RT}$	1. Given
2. $\angle RQS$ and $\angle TQS$ are rt. angles	2. \perp lines form rt. angles
3. $\angle RQS \cong \angle TQS$	3. Right angle congruence
4. \overline{QS} bisects $\angle RST$	4. Given
5. $\angle RSQ \cong \angle TSQ$	5. Definition of angle bisector
6. $\overline{SQ} \cong \overline{SQ}$	6. Reflexive Property
7. $\triangle RSQ \cong \triangle TSQ$	7. ASA

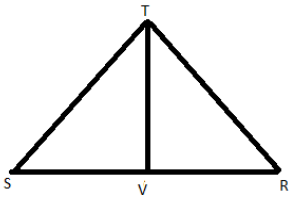
4. Given: R is the midpoint of \overline{PT} , $\angle P \cong \angle T$, $\angle PRQ \cong \angle TRS$



Statement	Reason
1. R is the midpoint of \overline{PT}	1. Given
2. $\overline{PR} \cong \overline{RS}$	2. Definition of midpoint
3. $\angle P \cong \angle T$	3. Given
4. $\angle PRQ \cong \angle TRS$	4. Given
5. $\triangle PRQ \cong \triangle TRS$	5. ASA

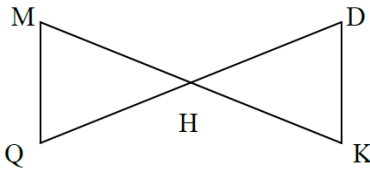
Homework 2.4 Proofs (Page 2)

5. Given: VT bisects $\angle STR$, $\overline{ST} \cong \overline{TR}$



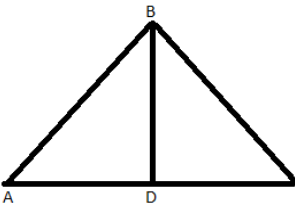
Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6. $\angle SVT \cong \angle RVT$	6.

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



Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5. $\triangle QMH \cong \triangle DKH$	5.

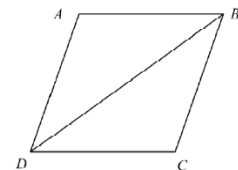
7. Given: $\overline{BD} \perp \overline{AC}$, D is the midpoint of \overline{AC}



Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7. $\triangle ADB \cong \triangle CDB$	7.

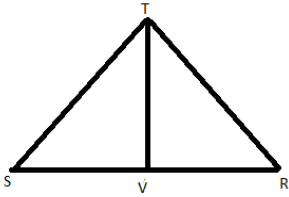
8. What is the missing reason in the proof? Given: Parallelogram ABCD with diagonal \overline{BD} .
Prove: $\triangle ABD \cong \triangle CDB$

Statements	Reasons
1. $AD \parallel BC$	1. Definition of parallelogram
2. $\angle ADB \cong \angle CBD$	2. Alternate Interior Angles Theorem
3. $AB \parallel CD$	3. Definition of parallelogram
4. $\angle ABD \cong \angle CDB$	4. Alternate Interior Angles Theorem
5. $DB \cong DB$	5. Reflexive Property of Congruence
6. $\triangle ABD \cong \triangle CDB$	6. ?



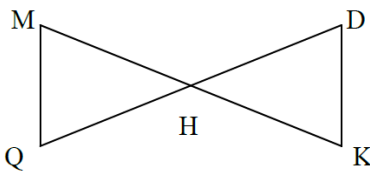
- a) Transitive Property of Equality b) SAS Congruence Postulate
c) SSS Congruence Postulate d) ASA Congruence Postulate

5. Given: VT bisects $\angle STR$, $\overline{ST} \cong \overline{TR}$



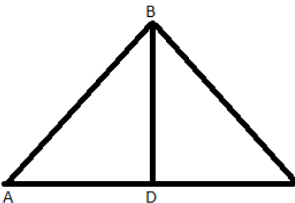
Statement	Reason
1. VT bisects $\angle STR$	1. Given
2. $\angle STV \cong \angle RTV$	2. Definition of angle bisector
3. $\overline{ST} \cong \overline{TR}$	3. Given
4. $\overline{VT} \cong \overline{VT}$	4. Reflexive Property
5. $\triangle SVT \cong \triangle RVT$	5. SAS
6. $\angle SVT \cong \angle RVT$	6. CPCTC

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



Statement	Reason
1. H is the midpoint of \overline{MK} and \overline{QD}	1. Given
2. $\overline{MH} \cong \overline{KH}$	2. Definition of Midpoint
3. $\overline{QH} \cong \overline{DH}$	3. Definition of Midpoint
4. $\angle QHM \cong \angle DHK$	4. Vertical angles are congruent
5. $\triangle QMH \cong \triangle DKH$	5. SAS

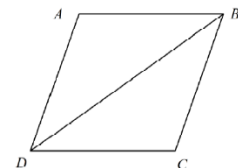
7. Given: $\overline{BD} \perp \overline{AC}$, D is the midpoint of \overline{AC}



Statement	Reason
1. $\overline{BD} \perp \overline{AC}$	1. Given
2. $\angle ADB$ and $\angle CDB$ are rt. angles	2. \perp lines form rt. angles
3. $\angle ADB \cong \angle CDB$	3. Right angle congruence
4. D is the midpoint of \overline{AC}	4. Given
5. $\overline{AD} \cong \overline{DC}$	5. Definition of midpoint
6. $\overline{DB} \cong \overline{DB}$	6. Reflexive Property
7. $\triangle ADB \cong \triangle CDB$	7. SAS

8. What is the missing reason in the proof? Given: Parallelogram ABCD with diagonal \overline{BD} . Prove: $\triangle ABD \cong \triangle CDB$

Statements	Reasons
1. $\overline{AD} \parallel \overline{BC}$	1. Definition of parallelogram
2. $\angle ADB \cong \angle CBD$	2. Alternate Interior Angles Theorem
3. $\overline{AB} \parallel \overline{CD}$	3. Definition of parallelogram
4. $\angle ABD \cong \angle CDB$	4. Alternate Interior Angles Theorem
5. $\overline{DB} \cong \overline{DB}$	5. Reflexive Property of Congruence
6. $\triangle ABD \cong \triangle CDB$	6. ?



- b) Transitive Property of Equality
- d) SSS Congruence Postulate

- b) SAS Congruence Postulate
- d) ASA Congruence Postulate

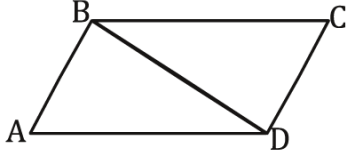
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Homework 2.4 Proofs (Page 3)

Find the mistake(s) in the given proofs.

9.

Given: $\overline{AB} \cong \overline{CD}$, $\overline{AD} \cong \overline{CB}$

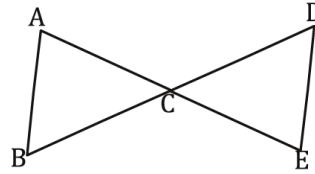


Prove: $\triangle ABD \cong \triangle CDB$

Statements	Reasons
1. $\overline{AB} \cong \overline{CD}$	1. Given
2. $\overline{AD} \cong \overline{CB}$	2. Given
3. $\overline{BD} \cong \overline{BD}$	3. Vertical Angles
4. $\triangle ABD \cong \triangle CDB$	4. SSS

10.

Given: \overline{AE} Bisects \overline{BD} , $\angle B \cong \angle D$

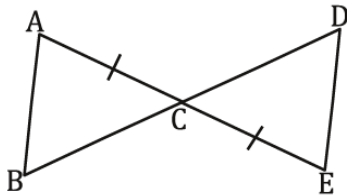


Prove: $\triangle ABC \cong \triangle DBC$

Statements	Reasons
1. $\angle B \cong \angle D$	1. Given
2. \overline{AC} Bisects \overline{BD}	2. Given
3. $\overline{AC} \cong \overline{CE}$	3. Definition of Bisect
4. $\angle ACB \cong \angle DCE$	4. Vertical angles
5. $\triangle ABC \cong \triangle DBC$	5. SAS

11.

Given $\overline{AB} \parallel \overline{ED}$, $\overline{AC} \cong \overline{EC}$

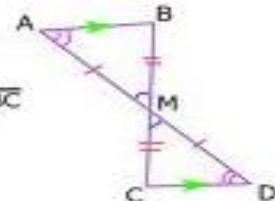


Prove: $\triangle ABC \cong \triangle EDC$

Statements	Reasons
1. $\overline{AB} \parallel \overline{ED}$	1. Given
2. $\overline{AC} \cong \overline{EC}$	2. Given
3. $\angle A \cong \angle D$	3. Alternate Interior angles
4. $\angle ACB \cong \angle DCE$	4. Vertical angles
5. $\triangle ABC \cong \triangle EDC$	5. AAS

12.

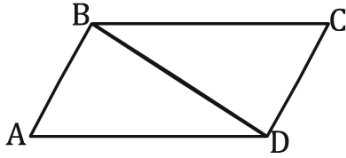
Given: M is the midpoint of \overline{AD} and \overline{BC}
 Prove: $\overline{AB} \parallel \overline{CD}$



Statements	Reasons
1. Given: M is the midpoint of \overline{AD} and \overline{BC}	1. Given
2. $\overline{AM} \cong \overline{MD}$ $\overline{BM} \cong \overline{MC}$	2. Definition of Midpoint
3. $\angle AMB \cong \angle DMC$	3. Vertical Angles Theorem
4. $\triangle ABM \cong \triangle DMC$	4. SAS Thm
5. $\angle A \cong \angle D$	5. Vertical Angles Theorem
6. $\overline{AB} \parallel \overline{CD}$	6. Converse of Alt. Interior Angles Thm

9.

Given: $\overline{AB} \cong \overline{CD}$, $\overline{AD} \cong \overline{CB}$



Prove: $\triangle ABD \cong \triangle CDB$

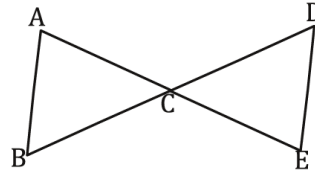
Statements	Reasons
1. $\overline{AB} \cong \overline{CD}$	1. Given
2. $\overline{AD} \cong \overline{CB}$	2. Given
3. $\overline{BD} \cong \overline{BD}$	3. Vertical Angles
4. $\triangle ABD \cong \triangle CDB$	4. SSS

↓

Reflexive Property

10.

Given: \overline{AE} Bisects \overline{BD} , $\angle B \cong \angle D$



Prove: $\triangle ABC \cong \triangle DBC$

Statements	Reasons
1. $\angle B \cong \angle D$	1. Given
2. \overline{AC} Bisects \overline{BD}	2. Given
3. $\overline{BC} \cong \overline{CB}$	3. Definition of Bisect
4. $\angle ACB \cong \angle DCE$	4. Vertical angles
5. $\triangle ABC \cong \triangle DBC$	5. SAS

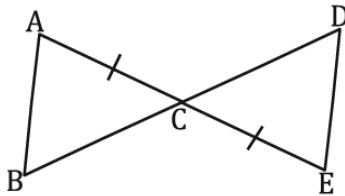
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$\overline{BC} \cong \overline{CB}$

ASA

11.

Given $\overline{AB} \parallel \overline{ED}$, $\overline{AC} \cong \overline{EC}$



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

Statements	Reasons
1. $\overline{AB} \parallel \overline{ED}$	1. Given
2. $\overline{AC} \cong \overline{EC}$	2. Given
3. $\angle A \cong \angle D$	3. Alternate Interior angles
4. $\angle ACB \cong \angle DCE$	4. Vertical angles
5. $\triangle ABC \cong \triangle EDC$	5. AAS

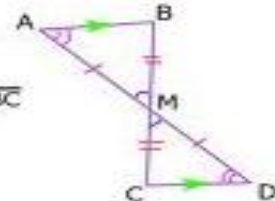
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$\angle E$

ASA

12.

Given: M is the midpoint of \overline{AD} and \overline{BC}
 Prove: $\overline{AB} \parallel \overline{CD}$



Statements	Reasons
1. Given: M is the midpoint of \overline{AD} and \overline{BC}	1. Given
2. $\overline{AM} \cong \overline{MD}$ $\overline{BM} \cong \overline{MC}$	2. Definition of Midpoint
3. $\angle AMB \cong \angle DMC$	3. Vertical Angles Theorem
4. $\triangle ABM \cong \triangle DCM$	4. SAS Thm
5. $\angle A \cong \angle D$	5. Vertical Angles Theorem
6. $\overline{AB} \parallel \overline{CD}$	6. Converse of Alt. Interior Angles Thm

↓

$\triangle ABM \cong \triangle DCM$

CPCTC