

A #31 [1] p. 129 CE #1-5 [2-column Proof]

Key

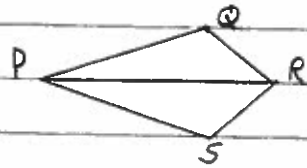
[2] p. 130-131 WE #1-8

[1] p. 129 CE #1-5

1. Given:  $\overleftrightarrow{PR}$  bisects  $\angle QPS$ ;  $\overline{PQ} \cong \overline{PS}$

For #1-2

Prove:  $\angle Q \cong \angle S$



Statements	Reasons
① $\overleftrightarrow{PR}$ bisects $\angle QPS$ ; $\overline{PQ} \cong \overline{PS}$	① Given
② $\angle QPR \cong \angle SPR$	② Def. of $\angle$ bisector
③ $\overline{PR} \cong \overline{PR}$	③ Refl. Prop. of $\cong$
④ $\triangle QPR \cong \triangle SPR$	④ SAS $\cong$ Post
⑤ $\angle Q \cong \angle S$	⑤ CPCTC

2. Given:  $\overleftrightarrow{PR}$  bisects  $\angle QPS$  and  $\angle QRS$

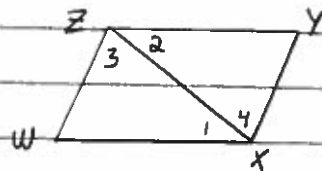
Prove:  $\overline{RQ} \cong \overline{RS}$

Statements	Reasons
① $\overleftrightarrow{PR}$ bisects $\angle QPS$ and $\angle QRS$	① Given
② $\angle QPR \cong \angle SPR$ , $\angle QRP \cong \angle SRP$	② Def. of $\angle$ bisector
③ $\overline{PR} \cong \overline{PR}$	③ Refl. Prop. of $\cong$
④ $\triangle QPR \cong \triangle SPR$	④ ASA $\cong$ Post
⑤ $\overline{RQ} \cong \overline{RS}$	⑤ CPCTC

3. Given:  $\overline{WX} \cong \overline{YZ}$ ,  $\overline{ZW} \cong \overline{XY}$

For #3-4

Prove:  $\overline{WX} \parallel \overline{ZY}$



Statements	Reasons
① $\overline{WX} \cong \overline{YZ}$ , $\overline{ZW} \cong \overline{XY}$	① Given
② $\overline{XZ} \cong \overline{XZ}$	② Refl. Prop. of $\cong$
③ $\triangle XYZ \cong \triangle ZWX$	③ SSS $\cong$ Post
④ $\angle 2 \cong \angle 1$	④ CPCTC
⑤ $\overline{WX} \parallel \overline{ZY}$	⑤ Alt. Int. $\angle$ s Converse

4. Given:  $\overline{ZW} \parallel \overline{YX}$ ;  $\overline{ZW} \cong \overline{XY}$

Prove:  $\overline{ZY} \parallel \overline{WX}$

Statements	Reasons
① $\overline{ZW} \parallel \overline{YX}$ ; $\overline{ZW} \cong \overline{XY}$	① Given
② $\angle 4 \cong \angle 3$	② Alt. Int. $\angle$ s Thm
③ $\overline{XZ} \cong \overline{XZ}$	③ Refl. Prop. of $\cong$
④ $\triangle XYZ \cong \triangle ZWX$	④ SAS $\cong$ Post
⑤ $\angle 2 \cong \angle 1$	⑤ CPCTC
⑥ $\overline{ZY} \parallel \overline{WX}$	⑥ Alt. Int. $\angle$ s Converse

p. 129 CE #5

5. Given:  $\overline{CD} \perp \overline{AB}$ ; D is the midpoint of  $\overline{AB}$

Prove:  $\overline{CA} \cong \overline{CB}$

Statements  
①  $\overline{CD} \perp \overline{AB}$ ; D is the midpoint of  $\overline{AB}$

Reasons  
① Given

②  $\angle ADC \cong \angle BDC$

②  $\perp$  lines form  $\cong$  adj.  $\angle$ s

③  $\overline{AD} \cong \overline{DB}$

③ Def. of Midpoint

④  $\overline{DC} \cong \overline{DC}$

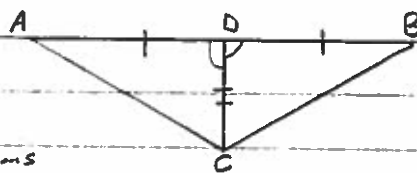
④ Refl. Prop. of  $\cong$

⑤  $\triangle ADC \cong \triangle BDC$

⑤ SAS  $\cong$  Post

⑥  $\overline{CA} \cong \overline{CB}$

⑥ CPCTC



② p. 130-131 WE #1-8

1. Given:  $\angle P \cong \angle S$ ; O is the midpoint of  $\overline{PS}$

Prove: O is the midpoint of  $\overline{RQ}$

Statements  
①  $\angle P \cong \angle S$  ② O is the midpt

Reasons  
①-② Given

③  $\overline{PO} \cong \overline{SO}$

③ Def. of Midpt

④  $\angle POQ \cong \angle SOR$

④ Vert.  $\angle$ s Thm

⑤  $\triangle POQ \cong \triangle SOR$

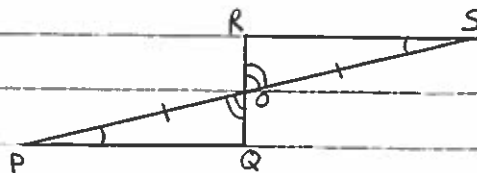
⑤ ASA  $\cong$  Post

⑥  $\overline{OQ} \cong \overline{OR}$

⑥ CPCTC

⑦ O is the midpt of  $\overline{RQ}$

⑦ Def. of Midpt



2. Given:  $\overline{AM} \cong \overline{BM}$ ;  $\overline{TM} \perp \overline{AB}$

Prove:  $\overline{AT} \cong \overline{BT}$

Statements  
①  $\overline{AM} \cong \overline{BM}$ ;  $\overline{TM} \perp \overline{AB}$

Reasons  
① Given

②  $\overline{TM} \cong \overline{TM}$

② Refl. Prop. of  $\cong$

③  $\angle 1 \cong \angle 2$

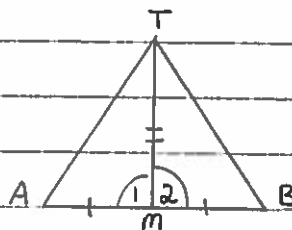
③  $\perp$  Lines form  $\cong$  adj.  $\angle$ s

④  $\triangle AMT \cong \triangle BMT$

④ SAS  $\cong$  Post

⑤  $\overline{AT} \cong \overline{BT}$

⑤ CPCTC



3. Given:  $\overline{WO} \cong \overline{ZO}$ ;  $\overline{XO} \cong \overline{YO}$

Prove:  $\angle W \cong \angle Z$

Statements  
①  $\overline{WO} \cong \overline{ZO}$ ;  $\overline{XO} \cong \overline{YO}$

Reasons  
① Given

②  $\angle WOX \cong \angle ZOY$

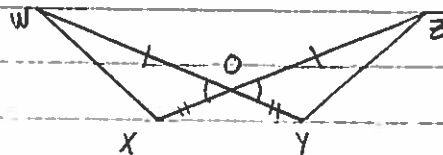
② Vert.  $\angle$ s Thm

③  $\triangle WOX \cong \triangle ZOY$

③ SAS  $\cong$  Post

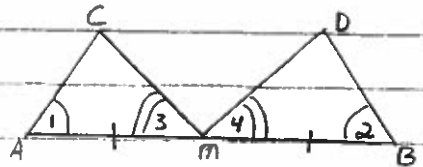
④  $\angle W \cong \angle Z$

④ CPCTC



P. 130-131 #4-8

4. Given:  $M$  is the midpt of  $\overline{AB}$ ;  $\angle 1 \cong \angle 2$ ;  $\angle 3 \cong \angle 4$

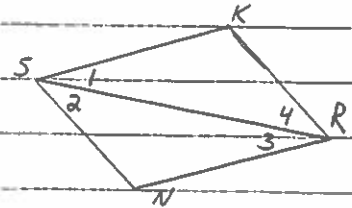


Prove:  $\overline{AC} \cong \overline{BD}$

- | Statements  | Reasons            |
|---|--------------------|
| ① $M$ is the midpt of $\overline{AB}$ ; $\angle 1 \cong \angle 2$ ; $\angle 3 \cong \angle 4$ | ① Given            |
| ② $\overline{AM} \cong \overline{MB}$   | ② Def. of midpt    |
| ③ $\triangle AMC \cong \triangle BMD$   | ③ ASA $\cong$ Post |
| ④ $\overline{AC} \cong \overline{BD}$   | ④ CPCTC            |

For #5-6

5. Given:  $\overline{SK} \parallel \overline{NR}$ ;  $\overline{SN} \parallel \overline{KR}$



Prove:  $\overline{SK} \cong \overline{NR}$ ;  $\overline{SN} \cong \overline{KR}$  \*

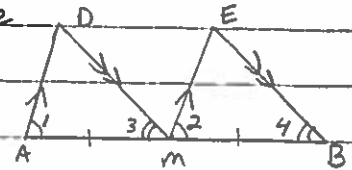
- | Statements  | Reasons                    |
|---|----------------------------|
| ① $\overline{SK} \parallel \overline{NR}$ ; $\overline{SN} \parallel \overline{KR}$ | ① Given                    |
| ② $\angle 1 \cong \angle 3$ ; $\angle 2 \cong \angle 4$                             | ② Alt. Int. $\angle$ s Thm |
| ③ $\overline{SR} \cong \overline{SR}$   | ③ Refl. Prop. of $\cong$   |
| ④ $\triangle SKR \cong \triangle RNS$   | ④ ASA $\cong$ Post         |
| ⑤ $\overline{SK} \cong \overline{NR}$ , $\overline{SN} \cong \overline{KR}$ *       | ⑤ CPCTC                    |

6. Given:  $\overline{SK} \cong \overline{NR}$ ;  $\overline{SN} \cong \overline{KR}$

Prove:  $\overline{SK} \parallel \overline{NR}$ ;  $\overline{SN} \parallel \overline{KR}$

- | Statements  | Reasons                         |
|---|---------------------------------|
| ① $\overline{SK} \cong \overline{NR}$ ; $\overline{SN} \cong \overline{KR}$         | ① Given                         |
| ② $\overline{SR} \cong \overline{SR}$   | ② Refl. Prop. of $\cong$        |
| ③ $\triangle SKR \cong \triangle RNS$   | ③ SSS $\cong$ Post              |
| ④ $\angle 1 \cong \angle 3$ ; $\angle 2 \cong \angle 4$                             | ④ CPCTC                         |
| ⑤ $\overline{SK} \parallel \overline{NR}$ ; $\overline{SN} \parallel \overline{KR}$ | ⑤ Alt. Int. $\angle$ s Converse |

7. Given:  $\overline{AD} \parallel \overline{ME}$ ;  $\overline{MD} \parallel \overline{BE}$ ;  $M$  is the midpt of  $\overline{AB}$



Prove:  $\overline{MD} \cong \overline{BE}$

- | Statements  | Reasons                 |
|---|-------------------------|
| ① $\overline{AD} \parallel \overline{ME}$ ; $\overline{MD} \parallel \overline{BE}$ ; $M$ is the midpt of $\overline{AB}$ | ① Given                 |
| ② $\overline{AM} \cong \overline{MB}$   | ② Def. of midpt         |
| ③ $\angle 1 \cong \angle 2$ ; $\angle 3 \cong \angle 4$   | ③ Corr. $\angle$ s Post |
| ④ $\triangle ADM \cong \triangle MEB$   | ④ ASA $\cong$ Post      |
| ⑤ $\overline{MD} \cong \overline{BE}$   | ⑤ CPCTC                 |

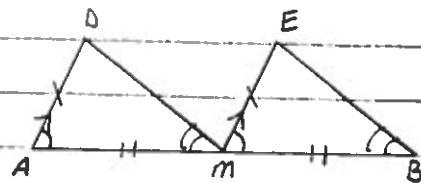
A#31 Continued

Key

P. 131 WE #8

8. Given:  $M$  is the midpoint of  $\overline{AB}$ ;  
 $\overline{AD} \cong \overline{ME}$ ;  $\overline{AD} \parallel \overline{ME}$

Prove:  $\overline{MD} \parallel \overline{BE}$



statements

Reasons

①  $M$  is the midpt of  $\overline{AB}$ ;  $\overline{AD} \cong \overline{ME}$ ;  $\overline{AD} \parallel \overline{ME}$

① Given

②  $\overline{AM} \cong \overline{MB}$

② Def. of midpt

③  $\angle A \cong \angle EMB$

③ Corr.  $\angle$ s Post

④  $\triangle ADM \cong \triangle MEB$

④ SAS  $\cong$  Post

⑤  $\angle DMA \cong \angle B$

⑤ CPCTC

⑥  $\overline{MD} \parallel \overline{BE}$

⑥ Corr.  $\angle$ s Converse