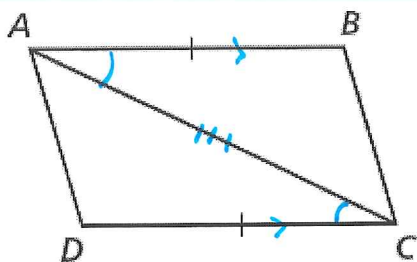


Key

Proofs of Congruent Triangles Extra Practice

1. Given: $\overline{AB} \cong \overline{DC}$; $\overline{AB} \parallel \overline{CD}$

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



1. $AB \cong DC$
 $AB \parallel DC$

2. $AC \cong AC$

3. $\angle BAC \cong \angle DCA$

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

1. given

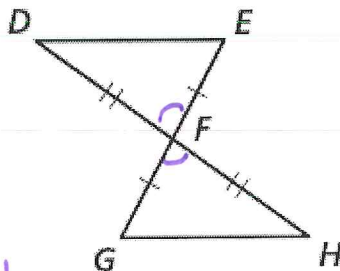
2. reflexive

3. alt int. \angle s are \cong

4. SAS

2. Given: $\overline{EF} \cong \overline{GF}$; $\overline{DF} \cong \overline{HF}$

Prove: $\overline{DE} \parallel \overline{GH}$



(Hint: You must first prove the triangles \cong)

1. $EF \cong GF$, $DF \cong HF$

2. $\angle DFE \cong \angle HFG$

3. $\triangle DFE \cong \triangle HFG$

4. $\angle E \cong \angle G$

5. $DE \parallel GH$

1. given

2. vertical \angle s are \cong

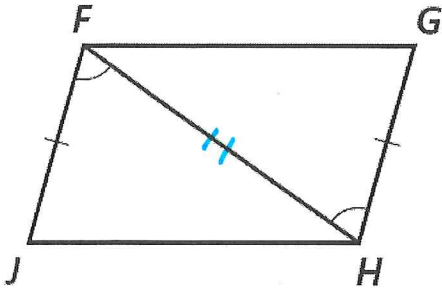
3. SAS

4. CPCTC

5. \cong alt int \angle s
form \parallel lines.

Given: $\overline{FJ} \cong \overline{GH}$, $\angle JFH \cong \angle GHF$

Prove: $\overline{FG} \cong \overline{JH}$



1. $FJ \cong GH$,
 $\angle JFH \cong \angle GHF$
2. $FH \cong FH$
3. $\triangle JFH \cong \triangle GHF$
4. $FG \cong JH$

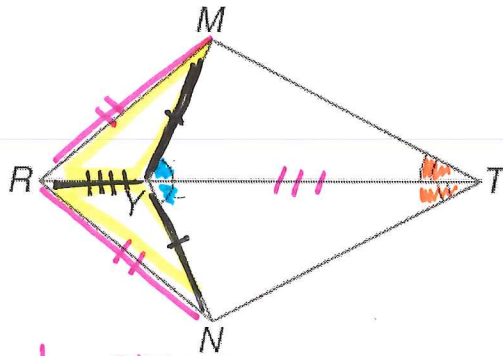
1. given
2. reflexive
3. SAS
4. CPCTC

$\angle MYT \cong \angle NYT$

4. Given: $\angle MTY \cong \angle NTY$

$\overline{MR} \cong \overline{NR}$

Prove: $\triangle MRY \cong \triangle NRY$



1. $\angle MYT \cong \angle NYT$
 $\angle MTY \cong \angle NTY$
 $MR \cong NR$

1. given

2. $YT \cong YT$

2. reflexive

3. $\triangle MYT \cong \triangle NYT$

3. ASA

4. $MY \cong NY$

4. CPCTC

5. $RY \cong RY$

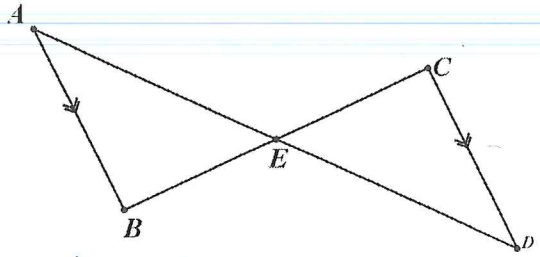
5. Reflexive

6. $\triangle MRY \cong \triangle NRY$

6. SSS

5. Given: $\overline{AB} \parallel \overline{CR}$; E is the midpoint of \overline{AD}

Prove: $\triangle ABE \cong \triangle DCE$



1. $AB \parallel CR$, E is the midpoint of AD

2. $BE \cong EC$

3. $\angle A \cong \angle D$
 $\angle B \cong \angle C$

4. $\triangle ABE \cong \triangle DCE$

1. given

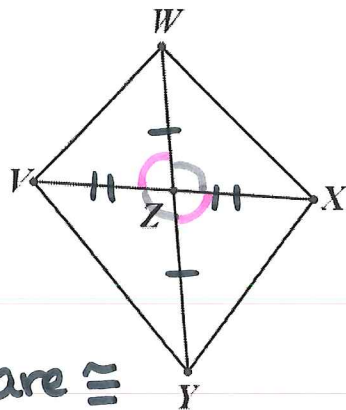
2. def of midpoint

3. alt. int. \angle s are \cong

4. AAS

6. Given: $\overline{WZ} \cong \overline{YZ}$; $\overline{VZ} \cong \overline{ZX}$

Prove: $\triangle VZW \cong \triangle XZY$



1. $WZ \cong YZ$
 $VZ \cong ZX$

2. $\angle VZY \cong \angle WZX$
 $\angle WZV \cong \angle XZY$

3. $\triangle VZW \cong \triangle XZY$

1. given

2. vertical \angle s are \cong

3. SAS

7. Given: $m\angle VWX = 90$; $m\angle YXW = 90$;

$\overline{WY} \cong \overline{XV}$

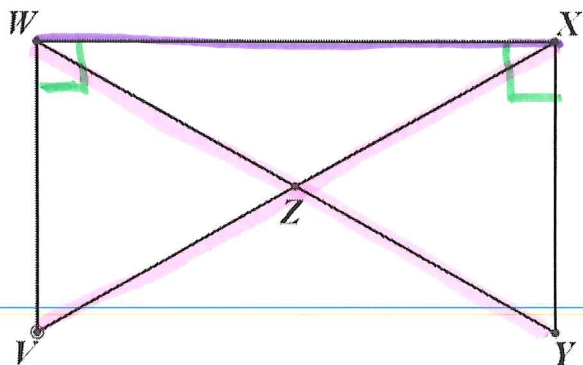
Prove: $\triangle XWV \cong \triangle WXY$

1. $m\angle VWX = 90$

$m\angle YXW = 90$

$WY \cong XV$

1. given



2. $\angle VWX = \angle YXW$ 2. substitution

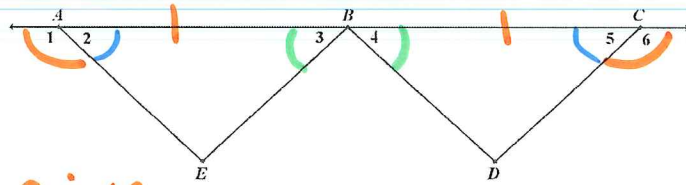
3. $WX = WX$ 3. reflexive

4. $\triangle XWV \cong \triangle WXY$ 4. HL

8. Given: $\angle 1 \cong \angle 6$; $\angle 3 \cong \angle 4$;

B is the midpoint of \overline{AC}

Prove: $\triangle ABE \cong \triangle CBD$



NOTE: Step 3 should be 2 linear pairs + then set = to each other

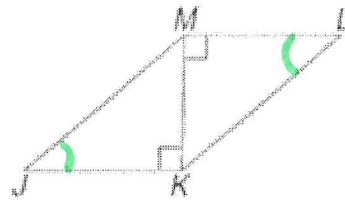
- | | |
|--|---|
| 1. $\angle 1 \cong \angle 6$, $\angle 3 \cong \angle 4$ | 1. given |
| B is midpt of AC | |
| 2. $AB \cong BC$ | 2. def of midpt |
| 3. $\angle 2 \cong \angle 5$ | 3. \angle s suppl. to the same \angle are \cong |
| 4. $\triangle ABE \cong \triangle CBD$ | 4. ASA |

9.

Given: $\overline{ML} \perp \overline{MK}$, $\overline{JK} \perp \overline{KM}$

$\angle J \cong \angle L$

Prove: $\overline{JM} \cong \overline{KL}$

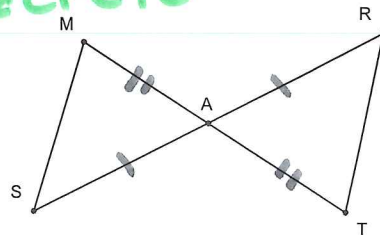


- | | |
|--|---------------------------|
| 1. $ML \perp MK$, $JK \perp KM$ | 1. given |
| $\angle J \cong \angle L$ | |
| 2. $\angle JKM = 90$ | 2. def of \perp |
| $\angle LMK = 90$ | |
| 3. $\angle JKM \cong \angle LMK$ | 3. substitution |
| 4. $MK = MK$ | 4. reflexive |
| 5. $\triangle JKM \cong \triangle LMK$ | 5. AAS |
| 6. $JM \cong KL$ | 6. CPCTC CPCTC |

10. Given: A is the midpoint of MT

A is the midpoint of SR

Prove: $\overline{MS} \cong \overline{TR}$

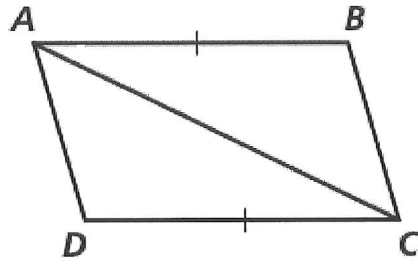


- | | |
|--|------------------------------------|
| 1. A is midpt of MT | 1. given |
| A is midpt of SR | |
| 2. $SA \cong AR$ | 2. def of midpt |
| $MA \cong AT$ | |
| 3. $\angle MAS \cong \angle RAT$ | 3. vertical \angle s are \cong |
| 4. $\triangle MAS \cong \triangle TAR$ | 4. SAS |
| 5. $MS \cong TR$ | 5. CPCTC |

Proofs of Congruent Triangles Extra Practice

1. Given: $\overline{AB} \cong \overline{DC}$; $\overline{AB} \parallel \overline{CD}$

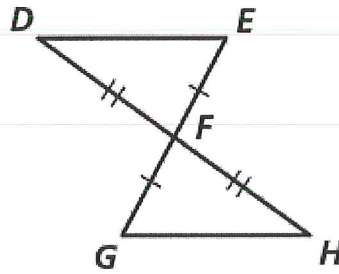
Prove: $\triangle ABC \cong \triangle CDA$



2. Given: $\overline{EF} \cong \overline{GF}$; $\overline{DF} \cong \overline{HF}$

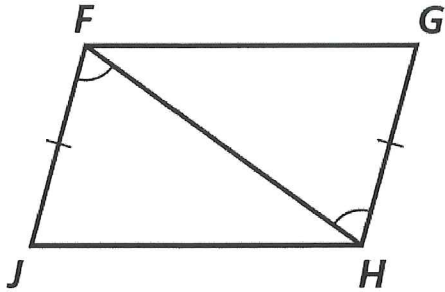
Prove: $\overline{DE} \parallel \overline{GH}$

(Hint: You must first prove the triangles \cong)



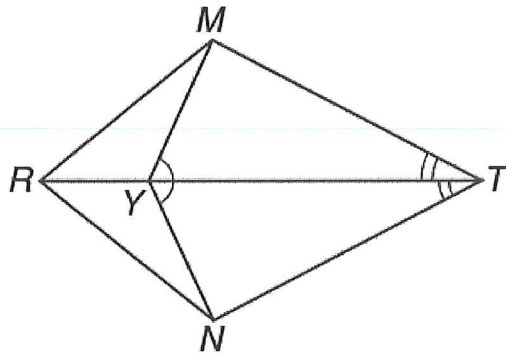
3. Given: $\overline{FJ} \cong \overline{GH}$, $\angle JFH \cong \angle GHF$

Prove: $\overline{FG} \cong \overline{JH}$



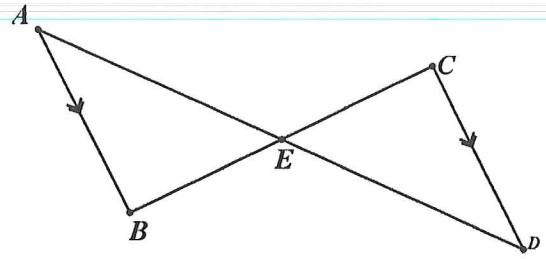
4. Given: $\angle MYT \cong \angle NYT$
 $\overline{MR} \cong \overline{NR}$

Prove: $\triangle MRY \cong \triangle NRY$



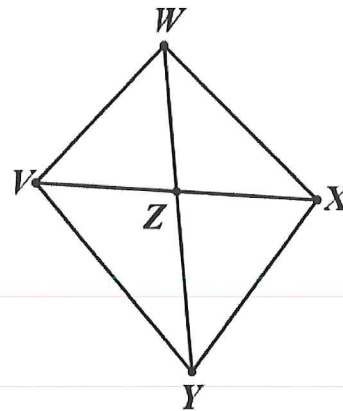
5. Given: $\overline{AB} \parallel \overline{CD}$; E is the midpoint of \overline{AD}

Prove: $\triangle ABE \cong \triangle DCE$



6. Given: $\overline{WZ} \cong \overline{YZ}$; $\overline{VZ} \cong \overline{XZ}$

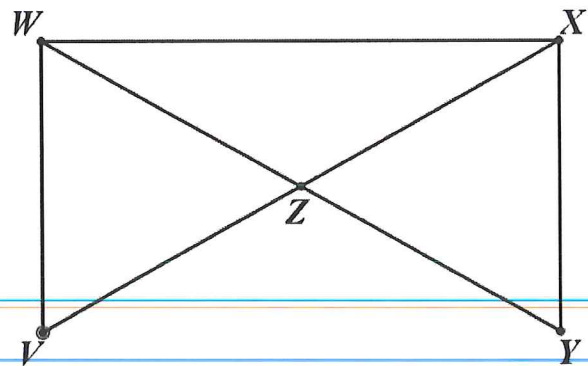
Prove: $\triangle VZW \cong \triangle XZY$



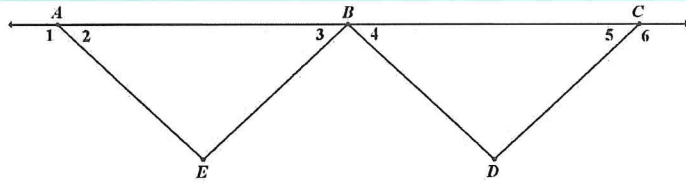
7. Given: $m\angle VWX = 90$; $m\angle YXW = 90$;

$\overline{WY} \cong \overline{XV}$

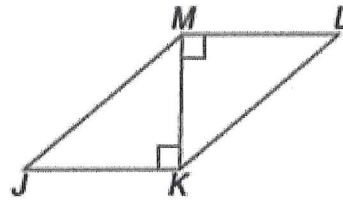
Prove: $\triangle XWV \cong \triangle WXY$



8. Given: $\angle 1 \cong \angle 6$; $\angle 3 \cong \angle 4$;
 B is the midpoint of \overline{AC}
 Prove: $\triangle ABE \cong \triangle CBD$



9. Given: $\overline{ML} \perp \overline{MK}$, $\overline{JK} \perp \overline{KM}$
 $\angle J \cong \angle L$
 Prove: $\overline{JM} \cong \overline{KL}$



10. Given: A is the midpoint of MT
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