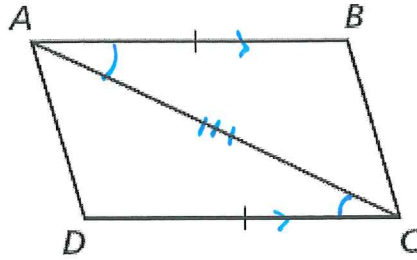


Key

Proofs of Congruent Triangles Extra Practice

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

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



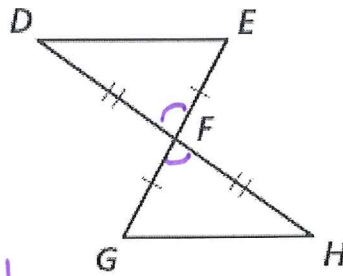
1. $AB \cong DC$
 $AB \parallel DC$
2. $AC \cong AC$
3. $\angle BAC \cong \angle DCA$
4. $\triangle ABC \cong \triangle CDA$

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)

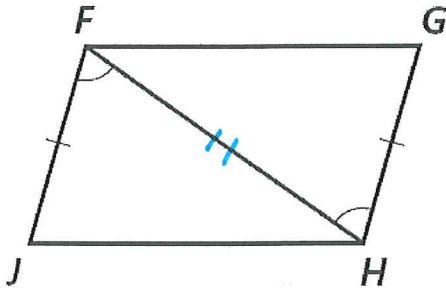


1. $EF \cong GF$, $DF \cong HF$
2. $\angle DFE \cong \angle HFG$
3. $\triangle DFE \cong \triangle HFG$
4. $\angle E \cong \angle G$
5. $DE \parallel GH$

1. given
2. Vertical \angle s are \cong
3. SAS
4. CPCTC
5. \cong alt int \angle s form \parallel lines.

3. 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. $\overline{FG} \cong \overline{JH}$

1. given

2. reflexive

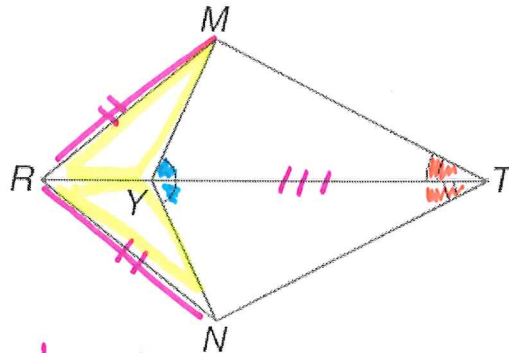
3. SAS

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. $\angle MYT \cong \angle NYT$
 $\angle MTY \cong \angle NTY$
 $\overline{MR} \cong \overline{NR}$

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

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

4. $\overline{MY} \cong \overline{NY}$

5. $\overline{RY} \cong \overline{RY}$

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

1. given

2. reflexive

3. ASA

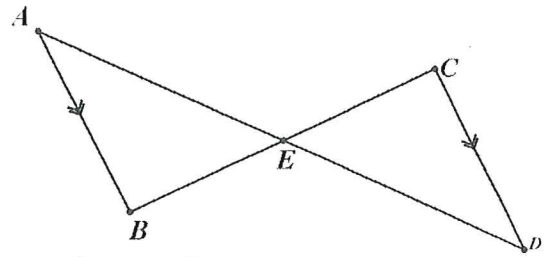
4. CPCTC

5. Reflexive

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

1. given

2. $BE \cong EC$

2. def of midpoint

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

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

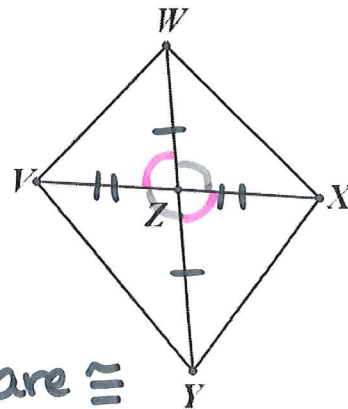
$\angle B \cong \angle C$

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

4. AAS

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

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



1. $WZ \cong YZ$

1. given

$VZ \cong ZX$

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

2. vertical \angle s are \cong

$\angle WZV \cong \angle XZY$

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

3. SAS

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

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

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

1. $m\angle VWX = 90$

1. given

$m\angle YXW = 90$

$WY \cong XV$

2. $\angle VWX = \angle YXW$

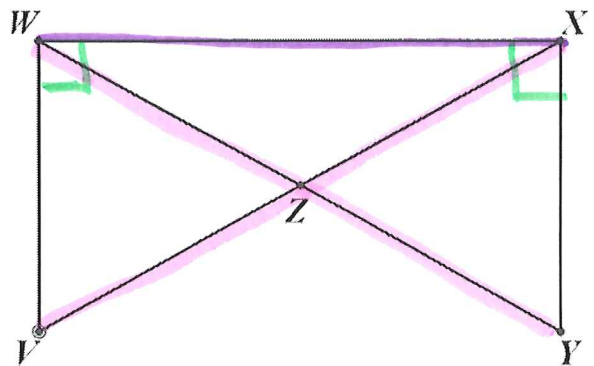
2. substitution

3. $WX = WX$

3. reflexive

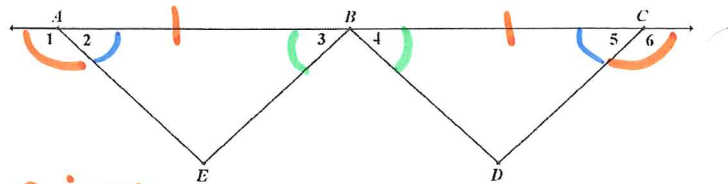
4. $\triangle XWV \cong \triangle WXY$

4. HL



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

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



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

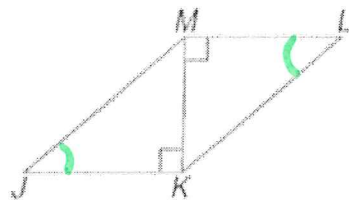
NOTE: Step 3 should be 2 linear pairs & then set = to each other

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. $\angle JKM = 90$
 $\angle LMK = 90$ 2. def of \perp
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
 A is midpt of SR 1. given
2. $SA \cong AR$
 $MA \cong AT$ 2. def of midpt
3. $\angle MAS \cong \angle RAT$ 3. vertical \angle s are \cong
4. $\triangle AMS \cong \triangle ATR$ 4. SAS
5. $MS \cong TR$ 5. CPCTC

