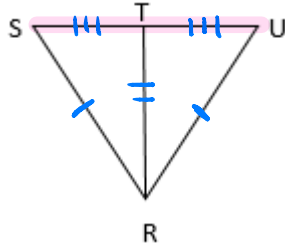


Assignment 2.5: Triangle Proofs

Name: Key

Math 2

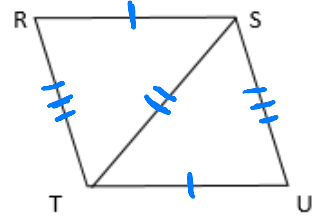
1. Given: $\overline{RS} \cong \overline{RU}$, \overline{RT} bisects \overline{SU}
 Prove: $\triangle RST \cong \triangle RUT$



~~SSS~~

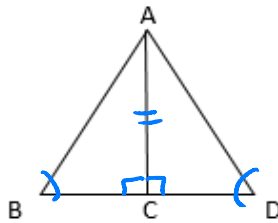
| Statements | Reasons |
|---|-----------------------------|
| ① $\overline{RS} \cong \overline{RU}$ | ① Given |
| ② \overline{RT} bisects \overline{SU} | ② Given |
| ③ $\overline{ST} \cong \overline{UT}$ | ③ Defn. of Segment Bisector |
| ④ $\overline{TR} \cong \overline{TR}$ | ④ Reflexive Property |
| ⑤ $\triangle RST \cong \triangle RUT$ | ⑤ SSS |

2. Given: $\overline{RS} \cong \overline{UT}$, $\overline{RT} \cong \overline{SU}$
 Prove: $\triangle RST \cong \triangle UTS$



| Statements | Reasons |
|---------------------------------------|-------------------|
| ① $\overline{RS} \cong \overline{UT}$ | ① Given |
| ② $\overline{RT} \cong \overline{SU}$ | ② Given |
| ③ $\overline{TS} \cong \overline{ST}$ | ③ Reflexive Prop. |
| ④ $\triangle RST \cong \triangle UTS$ | ④ SSS |

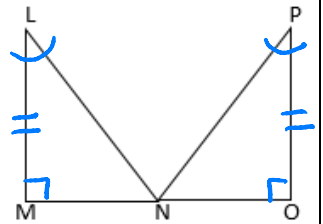
3. Given: $\angle B \cong \angle D$
 \overline{AC} is perpendicular to \overline{BD}
 Prove: $\triangle ABC \cong \triangle ADC$



✓✓✓
AAS

| Statements | Reasons |
|--|------------------------------------|
| ① $\angle B \cong \angle D$ | ① Given |
| ② $\overline{AC} \perp \overline{BD}$ | ② Given |
| ③ $\angle BCA$ & $\angle DCA$ are right \angle s | ③ Defn. of \perp |
| ④ $\angle BCA \cong \angle DCA$ | ④ all right \angle s are \cong |
| ⑤ $\overline{AC} \cong \overline{AC}$ | ⑤ Reflexive Prop. |
| ⑥ $\triangle ABC \cong \triangle ADC$ | ⑥ AAS |

4. Given: $\overline{LM} \cong \overline{PO}$, $\angle L \cong \angle P$,
 $\angle M$ & $\angle O$ are right
 Prove: $\triangle LMN \cong \triangle PON$

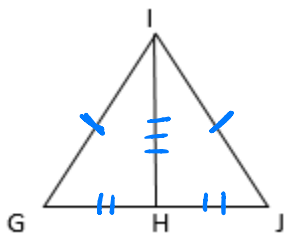


✓✓✓
ASA

| Statements | Reasons |
|---|------------------------------------|
| ① $\angle L \cong \angle P$ | ① Given |
| ② $\overline{LM} \cong \overline{PO}$ | ② Given |
| ③ $\angle M$ & $\angle O$ are rt angles | ③ Given |
| ④ $\angle M \cong \angle O$ | ④ all right \angle s are \cong |
| ⑤ $\triangle LMN \cong \triangle PON$ | ⑤ ASA |

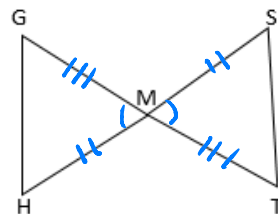
5. Given: H is the midpoint of \overline{GJ} , $\overline{GI} \cong \overline{IJ}$
 Prove: $\triangle GHI \cong \triangle JHI$

✓✓✓
 SSS



6. Given: M is the midpoint of \overline{GT} ,
 M is the midpoint of \overline{HS}
 Prove: $\triangle GMH \cong \triangle TMS$

✓✓✓
 SAS



Statements

Reasons

① H is the midpoint of \overline{GJ}

① Given

② $\overline{GH} \cong \overline{JH}$

② Defn. of midpoint

③ $\overline{HI} \cong \overline{HI}$

③ Reflexive Prop.

④ $\overline{GI} \cong \overline{IJ}$

④ Given

⑤ $\triangle GHI \cong \triangle JHI$

⑤ SSS

Statements

Reasons

① M is the midpt. of \overline{GT}

① Given

② $\overline{GM} \cong \overline{TM}$

② Defn. of midpt.

③ $\angle HMG \cong \angle SMT$

③ Vertical \angle s are \cong

④ M is the midpt of \overline{HS}

④ Given

⑤ $\overline{HM} \cong \overline{SM}$

⑤ Defn. of midpt.

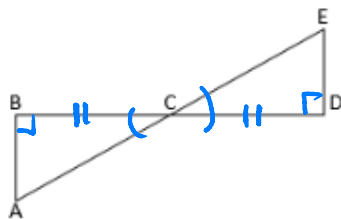
⑥ $\triangle GMH \cong \triangle TMS$

⑥ SAS

7. Given: $\angle B$ & $\angle D$ are right, \overline{AE} bisects \overline{BD}

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

✓✓✓
 ASA



Statements

Reasons

① $\angle B$ & $\angle D$ are right

① Given

② $\angle B \cong \angle D$

② all right \angle s are \cong

③ \overline{AE} bisects \overline{BD}

③ Given

④ $\overline{BC} \cong \overline{DC}$

④ Defn. of Segment bisectors

⑤ $\angle BCA \cong \angle DCE$

⑤ Vertical \angle s are \cong

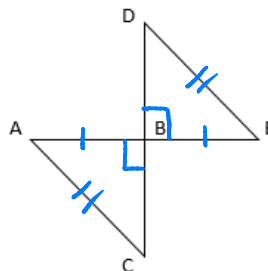
⑥ $\triangle ABC \cong \triangle EDC$

⑥ ASA

8. Given: $\overline{DC} \perp \overline{AE}$, $\overline{DE} \cong \overline{AC}$,
 B is the midpoint of \overline{AE}

Prove: $\triangle BDE \cong \triangle BCA$

✓ must prove right \angle s
 HL



Statements

Reasons

① $\overline{DC} \perp \overline{AE}$

① Given

② $\angle ABC$ & $\angle EBC$ are rt. \angle s

② Defn. of \perp

③ $\triangle BDE$ & $\triangle BCA$ are right \triangle s

③ Defn. of right \triangle s

④ $\overline{DE} \cong \overline{CA}$

④ Given

⑤ B is the midpoint of \overline{AE}

⑤ Given

⑥ $\overline{AB} \cong \overline{EB}$

⑥ Defn. of midpt.

⑦ $\triangle BDE \cong \triangle BCA$

⑦ HL