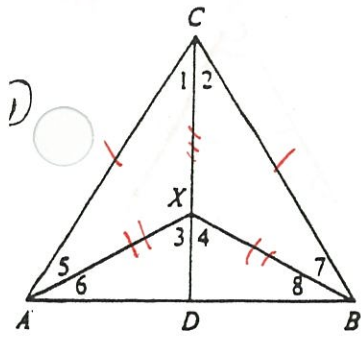


Worksheets
Chp. 8 Sec. 4+5

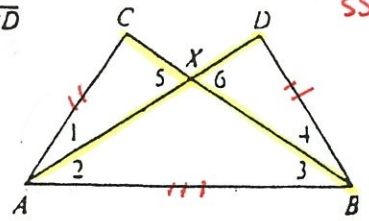


Given: $\overline{AC} \cong \overline{BC}$;
 $\overline{AX} \cong \overline{BX}$ SSS

Prove: $\triangle AXC \cong \triangle BXC$

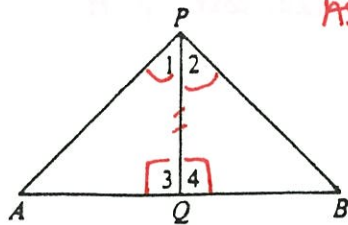
- | | |
|---------------------------------------|---------------------------|
| ① $\overline{AC} \cong \overline{BC}$ | ① given |
| ② $\overline{AX} \cong \overline{BX}$ | ② given |
| ③ $\overline{CX} \cong \overline{CX}$ | ③ reflex. prop of \cong |
| ④ $\triangle AXC \cong \triangle BXC$ | ④ SSS |

② Given: $\overline{BC} \cong \overline{AD}$; $\overline{AC} \cong \overline{BD}$
Prove: $\triangle ABC \cong \triangle BAD$ SSS



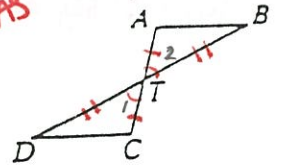
- | | |
|---------------------------------------|------------------------|
| ① $\overline{BC} \cong \overline{AD}$ | ① given |
| ② $\overline{AC} \cong \overline{BD}$ | ② given |
| ③ $\overline{AB} \cong \overline{AB}$ | ③ reflex. prop \cong |
| ④ $\triangle ABC \cong \triangle BAD$ | ④ SSS |

① Given: $\overline{PQ} \perp \overline{AB}$;
 \overline{PQ} bisects $\angle APB$.
Prove: $\triangle APQ \cong \triangle BPQ$



- | | |
|--|---------------------------|
| ① $\overline{PQ} \perp \overline{AB}$
$\angle 3 + \angle 4$ are rt. \angle 's | ① given
def of \perp |
| ② $m\angle 3 = 90$; $m\angle 4 = 90$ | ② def of rt. \angle |
| ③ $m\angle 3 = m\angle 4$ | ③ subst. prop = |
| ④ $\angle 3 \cong \angle 4$ | ④ def of \cong |
| ⑤ \overline{PQ} bisects $\angle APB$ | ⑤ given |
| ⑥ $\angle 1 \cong \angle 2$ | ⑥ def of \angle bisect. |
| ⑦ $\overline{PQ} \cong \overline{PQ}$ | ⑦ refl. prop \cong |
| ⑧ $\triangle APQ \cong \triangle BPQ$ | ⑧ ASA |

④ Given: $\overline{AT} \cong \overline{TC}$;
 $\overline{BT} \cong \overline{TD}$
Prove: $\angle B \cong \angle D$ SAS



- | | |
|---|--------------------------|
| ① $\overline{AT} \cong \overline{TC}$ | ① given |
| ② $\overline{BT} \cong \overline{TD}$ | ② given |
| ③ $\angle 1 + \angle 2$ are
vert. \angle | ③ def. of vert. \angle |
| ④ $\angle 1 \cong \angle 2$ | ④ vert. \angle thm |
| ⑤ $\triangle DTC \cong \triangle BTA$ | ⑤ SAS |
| ⑥ $\angle B \cong \angle D$ | ⑥ cpctc |

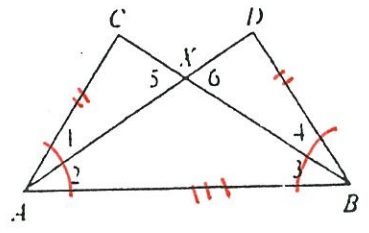
(States: All Rt. \angle 's are \cong)

* Use Right Angle Congruence Thm on #'s 3+8 *
(much shorter)

22

Given: $\overline{AC} \cong \overline{BD}$; $\angle CAB \cong \angle DBA$
 Prove: $\triangle BAC \cong \triangle ABD$

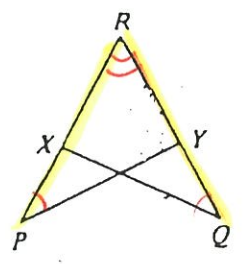
SAS



- ① $\overline{AC} \cong \overline{BD}$ ① given
- ② $\angle CAB \cong \angle DBA$ ② given
- ③ $\overline{BA} \cong \overline{BA}$ ③ refl. prop of \cong
- ④ $\triangle BAC \cong \triangle ABD$ ④ SAS

⑥ Given: $\angle P \cong \angle Q$; $\overline{PR} \cong \overline{QR}$
 Prove: $\triangle PRY \cong \triangle QRX$

ASA

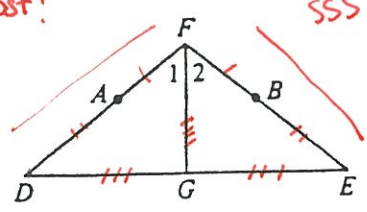


- ① $\angle P \cong \angle Q$ ① given
- ② $\overline{PR} \cong \overline{QR}$ ② given
- ③ $\angle R \cong \angle R$ ③ reflex. prop of \cong
- ④ $\triangle PRY \cong \triangle QRX$ ④ ASA

hint: seg. add. post!

Given: $FA = FB$;
 $AD = BE$;
 G is the midpoint of \overline{DE} .
 Prove: $\triangle DFG \cong \triangle EFG$

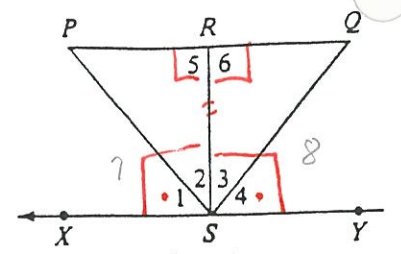
SSS



- ① $FA = FB$ ① given
- ② $AD = BE$ ② given
- ③ $FA + AD = FD$ ③ seg. add. post
- ④ $FB + BE = FE$ ④ subs. prop =
- ⑤ $FD = FE$ ⑤ seg. add. post
- ⑥ $FG = FG$ ⑥ subs. prop =
- ⑦ $\overline{FD} \cong \overline{FE}$ ⑦ def of \cong
- ⑧ G is m.p. of DE ⑧ given
- ⑨ $\overline{DG} \cong \overline{GE}$ ⑨ def of m.p.
- ⑩ $\overline{FG} \cong \overline{FG}$ ⑩ refl. prop \cong
- ⑪ $\triangle DFG \cong \triangle EFG$ ⑪ SSS

⑧ hint: angle add. post. ASA

Given: $\overline{RS} \perp \overline{XY}$;
 $\overline{RS} \perp \overline{PQ}$;
 $\angle 1 \cong \angle 4$
 Prove: $\triangle PRS \cong \triangle QRS$



- ① $\overline{RS} \perp \overline{XY}$ ① given
- ② $\angle 7 = 90^\circ$; $\angle 8 = 90^\circ$ ② def of \perp
- ③ $m\angle 7 = m\angle 8$ ③ def of rt. \angle
- ④ $m\angle 1 + m\angle 2 = m\angle 7$ ④ subs. prop =
- ⑤ $\angle 1 \cong \angle 4$ ⑤ ang. add. post
- ⑥ $m\angle 1 = m\angle 4$ ⑥ given
- ⑦ $m\angle 4 + m\angle 2 = m\angle 7$ ⑦ def of \cong
- ⑧ $m\angle 3 + m\angle 4 = m\angle 8$ ⑧ subst. prop. =
- ⑨ $m\angle 4 + m\angle 2 = m\angle 3 + m\angle 4$ ⑨ ang. add. post.
- ⑩ $m\angle 2 = m\angle 3$ ⑩ subst. prop. =
- ⑪ $\overline{RS} \perp \overline{PQ}$ ⑪ def of \perp
- ⑫ $m\angle 5 = 90^\circ$; $m\angle 6 = 90^\circ$ ⑫ given
- ⑬ $m\angle 5 = m\angle 6$ ⑬ def of rt. \angle
- ⑭ $\angle 5 \cong \angle 6$ ⑭ subst. prop. =
- ⑮ $\overline{RS} \cong \overline{RS}$ ⑮ def of \perp
- ⑯ $\triangle PRS \cong \triangle QRS$ ⑯ refl. prop \cong