

Self-Test 1, Pages 132–133

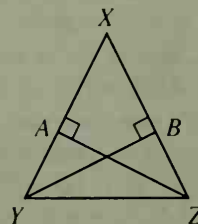
- $\angle P \cong \angle T$; CPCT
- $\overline{KO}, \overline{MA}; \overline{OP}, \overline{AT}; \overline{KP}, \overline{MT}$
- $\triangle JKX \cong \triangle JKY$; SAS
- No \cong can be deduced.
- $\triangle TRP \cong \triangle TRS$; ASA
1. $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 4$ (Given) 2. $\overline{DB} \cong \overline{DB}$ (Refl. Prop.)
- $\triangle ADB \cong \triangle CBD$ (ASA Post.)
1. $\overline{CD} \cong \overline{AB}$; $\overline{CB} \cong \overline{AD}$ (Given) 2. $\overline{DB} \cong \overline{DB}$ (Refl. Prop.)
- $\triangle ADB \cong \triangle CBD$ (SSS Post.)
- $\angle 1 \cong \angle 2$ (CPCT)
1. $\overline{AD} \parallel \overline{BC}$ (Given) 2. $\angle 4 \cong \angle 3$ (If 2 \parallel lines are cut by a trans., then alt. int. \angle s are \cong .)
- $\overline{AD} \cong \overline{CB}$ (Given) 4. $\overline{DB} \cong \overline{DB}$ (Refl. Prop.)
- $\triangle ADB \cong \triangle CBD$ (SAS Post.)
- $\angle 1 \cong \angle 2$ (CPCT)
- $\overline{DC} \parallel \overline{AB}$ (If 2 lines are cut by a trans. and alt. int. \angle s are \cong , then the lines are \parallel .)

Written Exercises, Pages 137–139

- 80
- 53
- 5
- 41
- Answers may vary; c, d, b, a
1. $\overline{AB} \cong \overline{AC}$ (Given) 2. Let the bis. of $\angle A$ int. \overline{BC} at D . (By the Protractor Post., an \angle has exactly one bis.) 3. $\angle BAD \cong \angle CAD$ (Def. of \angle bis.) 4. $\overline{AD} \cong \overline{AD}$ (Refl. Prop.) 5. $\triangle BAD \cong \triangle CAD$ (SAS Post.) 6. $\angle B \cong \angle C$ (CPCT)
1. $\angle 1 \cong \angle 2$ (Given) 2. $\overline{JG} \cong \overline{JM}$ (If 2 \angle s of a \triangle are \cong , then the sides opp. those \angle s are \cong .) 3. M is the midpt. of \overline{JK} . (Given) 4. $\overline{JM} \cong \overline{MK}$ (Def. of midpt.) 5. $\overline{JG} \cong \overline{MK}$ (Trans. Prop.)
- 1, 3
1. $\overline{XY} \cong \overline{XZ}$ (Given) 2. $\angle XYZ \cong \angle XZY$ or $m\angle XYZ = m\angle XZY$ (Isos. \triangle Thm.) 3. $m\angle XYZ = m\angle 1 + m\angle 2$; $m\angle XZY = m\angle 3 + m\angle 4$ (\angle Add. Post.) 4. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$ (Substitution Prop.) 5. $\overline{OY} \cong \overline{OZ}$ (Given) 6. $\angle 2 \cong \angle 3$ or $m\angle 2 = m\angle 3$ (Isos. \triangle Thm.) 7. $m\angle 1 = m\angle 4$ (Subtr. Prop. of =)
1. $\overline{AB} \cong \overline{AC}$ (Given) 2. $\angle B \cong \angle C$ (Isos. \triangle Thm.) 3. \overline{AL} and \overline{AM} trisect $\angle BAC$, so $\angle 1 \cong \angle 3$. (Given) 4. $\triangle BLA \cong \triangle CMA$ (ASA Post.) 5. $\overline{AL} \cong \overline{AM}$ (CPCT)
1. $\overline{OP} \cong \overline{OQ}$; $\angle 3 \cong \angle 4$ (Given)
- $\angle POS \cong \angle QOR$ (Vert. \angle s are \cong .) 3. $\triangle POS \cong \triangle QOR$ (ASA Post.) 4. $\overline{OS} \cong \overline{OR}$ (CPCT) 5. $\angle 5 \cong \angle 6$ (Isos. \triangle Thm.)
- a. 40, 40, 60 b. $2x, 2x, 3x$
- a. 90 b. 90
- $x = 2, y = 1$
- $x = 30, y = 10$
- a. Key steps of proof: 1. $\triangle JKM \cong \triangle JKN$ and $\triangle LKM \cong \triangle LKN$ (SAS Post.) 2. $\overline{JM} \cong \overline{JN}$ and $\overline{LM} \cong \overline{LN}$ (CPCT) 3. $\triangle JMN$ and $\triangle LMN$ are isos. (Def. of isos. \triangle) b. No. They are \cong if and only if $\overline{KJ} \cong \overline{KL}$.
- $m\angle EAF = 9, m\angle AFD = 54, m\angle DAF = 45$

Written Exercises, Pages 143–145

1. Given 2. Def. of rt. \triangle 3. Given 4. $\overline{XZ} \cong \overline{XZ}$ 5. $\triangle XYZ$; HL 6. $\overline{WZ} \cong \overline{YZ}$; CPCT 3. 1. $\overline{EF} \perp \overline{EG}$; $\overline{HG} \perp \overline{EG}$ (Given) 2. $\angle HGE$ and $\angle FEG$ are rt. \angle s. (Def. of \perp lines) 3. $\triangle HGE$ and $\triangle FEG$ are rt. \triangle s. (Def. of rt. \triangle) 4. $\overline{EH} \cong \overline{GF}$ (Given) 5. $\overline{EG} \cong \overline{EG}$ (Refl. Prop.) 6. $\triangle HGE \cong \triangle FEG$ (HL) 7. $\angle H \cong \angle F$ (CPCT)
- SAS
- HL
- a. 1. $\overline{PR} \cong \overline{PQ}$ (Given) 2. $\angle PQR \cong \angle PRQ$ (Isos. \triangle Thm.) 3. $\overline{SR} \cong \overline{TQ}$ (Given) 4. $\overline{RQ} \cong \overline{RQ}$ (Refl. Prop.) 5. $\triangle RQS \cong \triangle QRT$ (SAS Post.) 6. $\overline{QS} \cong \overline{RT}$ (CPCT) b. 1. $\overline{PR} \cong \overline{PQ}$ or $PR = PQ$; $\overline{SR} \cong \overline{TQ}$ or $SR = TQ$ (Given) 2. $PR = PS + SR$; $PQ = PT + TQ$ (Seg. Add. Post.) 3. $PS + SR = PT + TQ$ (Substitution Prop.) 4. $PS = PT$ or $\overline{PS} \cong \overline{PT}$ (Subtr. Prop. of =) 5. $\angle P \cong \angle P$ (Refl. Prop.) 6. $\triangle PQS \cong \triangle PRT$ (SAS Post.) 7. $\overline{QS} \cong \overline{RT}$ (CPCT)
- $\overline{PR} \cong \overline{PS}$, $\overline{PQ} \cong \overline{PT}$, $\overline{QR} \cong \overline{TS}$; SSS
- $\angle 3 \cong \angle 4$, $\overline{PQ} \cong \overline{PT}$, $\angle 6 \cong \angle 5$; AAS
1. $\angle 1 \cong \angle 2 \cong \angle 3$ (Given) 2. $\overline{ME} \cong \overline{MD}$ (If 2 \angle s of a \triangle are \cong , then the sides opp. those \angle s are \cong .) 3. $\overline{EN} \cong \overline{DG}$ (Given) 4. $\triangle MEN \cong \triangle MDG$ (SAS Post.) 5. $\angle 4 \cong \angle 5$ (CPCT)
- Given: Isos. $\triangle XYZ$ with $\overline{XY} \cong \overline{XZ}$;
 $\overline{ZA} \perp \overline{XY}$; $\overline{YB} \perp \overline{XZ}$
 Prove: $\overline{ZA} \cong \overline{YB}$
 Proof: 1. $\overline{ZA} \perp \overline{XY}$; $\overline{YB} \perp \overline{XZ}$ (Given) 2. $m\angle XBY = 90$; $m\angle XAZ = 90$ (Def. of \perp lines) 3. $\angle XBY \cong \angle XAZ$ (Def. of $\cong \angle$ s) 4. $\angle X \cong \angle X$ (Refl. Prop.) 5. $\overline{XY} \cong \overline{XZ}$ (Given) 6. $\triangle XBY \cong \triangle XAZ$ (AAS Thm.) 7. $\overline{ZA} \cong \overline{YB}$ (CPCT)



Self-Test 2, Page 146

- 70
- 7
- 30
- $\overline{AB} \cong \overline{AC}$, $\angle A \cong \angle A$, $\angle ANB \cong \angle AMC$, so $\triangle ABN \cong \triangle ACM$ by AAS.
1. $\overline{BN} \perp \overline{AC}$; $\overline{CM} \perp \overline{AB}$ (Given) 2. $\angle BMC$ and $\angle CNB$ are rt. \angle s. (Def. of \perp lines) 3. $\triangle BMC$ and $\triangle CNB$ are rt. \triangle s. (Def. of rt. \triangle) 4. $\overline{MB} \cong \overline{NC}$ (Given) 5. $\overline{BC} \cong \overline{BC}$ (Refl. Prop.) 6. $\triangle BMC \cong \triangle CNB$ (HL)
- $\overline{CM} \cong \overline{BN}$ (CPCT)