

## Self-Test 1, Pages 132–133

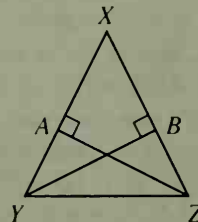
- $\angle P \cong \angle T$ ; CPCT
- $\overline{KO}, \overline{MA}; \overline{OP}, \overline{AT}; \overline{KP}, \overline{MT}$
- $\triangle JKX \cong \triangle JKY$ ; SAS
- No  $\cong$  can be deduced.
- $\triangle TRP \cong \triangle TRS$ ; ASA
1.  $\angle 1 \cong \angle 2$ ;  $\angle 3 \cong \angle 4$  (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)