

Self-Test 2, Page 195

1. \square 2. trap. 3. rect. 4. sq. 5. 11 6. 17, 67 7. 1. $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$ (Given)
2. $\overline{HG} \parallel \overline{EF}$; $\overline{HE} \parallel \overline{GF}$ (If alt. int. \angle s \cong , lines \parallel .) 3. $EFGH$ is a \square . (Def. of \square) 4. $\overline{HG} \cong \overline{HE}$ (If 2 \angle s of a \triangle are \cong , sides opp. the \angle s are \cong .) 5. $HGFE$ is a rhom. (Thm. 5-17) 8. a. \square b. 1. $PQRS$ is a \square . (Given)
2. $\overline{PQ} \parallel \overline{SR}$ (Def. of \square) 3. X is the midpt. of \overline{PQ} ; Y is the midpt. of \overline{SR} . (Given) 4. $XQ = \frac{1}{2}PQ$; $YR = \frac{1}{2}SR$ (Midpt. Thm.) 5. $PQ = SR$ (Thm. 5-1) 6. $\frac{1}{2}PQ = \frac{1}{2}SR$ (Mult. Prop. of $=$) 7. $XQ = YR$ (Subst.)
8. $XQRY$ is a \square . (Thm. 5-5) c. trap.

Chapter Review, Pages 197–198

1. 110 3. 28 5. $GS = 5$ or $\overline{SA} \parallel \overline{GN}$ 7. $\overline{AZ} \cong \overline{GZ}$ 9. Thm. 5-10 11. Thm. 5-11, part (2)
13. \square 15. rect. 17. Key steps of proof: 1. $DO = BO$; $AO = CO$ (Diags. \square bis. each other.)
2. $EO = FO$ (Subtr. Prop. $=$) 3. $AECF$ is a \square . (Thm. 5-7) 4. $\overline{BD} \perp \overline{AC}$ (Diags. of rhom. \perp .)
5. $\triangle COE \cong \triangle COF$ (SAS) 6. $\overline{CE} \cong \overline{CF}$ (CPCT) 7. $AECF$ is a rhom. (Thm. 5-17) 19. \overline{ZO} , \overline{DI} 21. 4

Cumulative Review, Pages 200–201

1. one 3. If you enjoy winter weather, then you are a member of the skiing club. 5. Trans. Prop.
7. 180; \angle Add. Post. 9. $\angle 1$; If lines \parallel , corr. \angle s are \cong . 11. bis., \perp 13. a. $\triangle RTA$ b. \overline{DB}
c. $m\angle E$ 15. 150, 150 17. $3r - s$ 19. bis. 21. 72, 36 23. ABC, BAC, ACD, CFD
25. $m\angle 1 = m\angle 4 = k$, $m\angle 2 = m\angle 3 = 45 - k$ 27. $\angle NOM, \angle LMO, \angle NMO$; Thm. 5-14 29. PQ ,
 ON ; Thm. 5-19 31. 1. $\overline{AD} \cong \overline{BC}$; $\overline{AD} \parallel \overline{BC}$ (Given) 2. $ABCD$ is a \square . (Thm. 5-5) 3. $\overline{DF} \cong \overline{BF}$ (Diags.
 \square bis. each other.) 4. $\angle DFG \cong \angle BFE$ (Vert. \angle s \cong .) 5. $\overline{DC} \parallel \overline{AB}$ (Def. of \square) 6. $\angle CDB \cong \angle ABD$ (If \parallel
lines, alt. int. \angle s \cong .) 7. $\triangle DFG \cong \triangle BFE$ (ASA) 8. $\overline{EF} \cong \overline{FG}$ (CPCT)

Chapter 6

Written Exercises, Pages 206–207

1. a. No b. Yes c. Yes d. No e. Yes f. No 3. a. No b. No c. Yes d. Yes 5. $j = 2$, $k = 1$,
 $l = 4$, $m = 3$ 7. 1. Vert. \angle s \cong . 2. \angle Add Post. 3. A Prop. of Ineq. 4. Subst. 9. 1. $m\angle ROS >$
 $m\angle TOV$ (Given) 2. $m\angle SOT = m\angle SOT$ (Reflex.) 3. $m\angle ROS + m\angle SOT > m\angle TOV + m\angle SOT$
(A Prop. of Ineq.) 4. $m\angle ROS + m\angle SOT = m\angle ROT$; $m\angle TOV + m\angle SOT = m\angle SOV$ (\angle Add. Post.)
5. $m\angle ROT > m\angle SOV$ (Subst.) 11. 1. $m\angle 1 > m\angle 2$; $m\angle 2 > m\angle 3$ (Ext. \angle Ineq. Thm.) 2. $m\angle 1 >$
 $m\angle 3$ (A Prop. of Ineq.) 3. $m\angle 3 = m\angle 4$ (Vert. \angle s \cong .) 4. $m\angle 1 > m\angle 4$ (Subst.)

Written Exercises, Pages 210–212

1. a. If $4n \neq 68$, then $n \neq 17$. b. If $n \neq 17$, then $4n \neq 68$. 3. a. If $x + 1$ is odd, then x is even. b. If
 x is even, then $x + 1$ is odd. 5. True. If I don't live in Calif., then I don't live in L.A.; true. If I live in
Calif., then I live in L.A.; false. If I don't live in L.A., then I don't live in Calif.; false. 7. False. If M is not
the midpt. of \overline{AB} , then $AM \neq MB$; false. If M is the midpt. of \overline{AB} , then $AM = MB$; true. If $AM \neq MB$, then M is
not the midpt. of \overline{AB} ; true. 9. True. If $n \leq -3$, then $-2n \geq 6$; true. If $n > -3$, then $-2n < 6$; true. If
 $-2n \geq 6$, then $n \leq -3$; true. 11. If you are a senator, then you are at least 30 years old. a. No concl.
b. She is at least 30 years old. c. No concl. d. He is not a senator. 13. a. It is raining. b. I am happy.
c. No concl. d. No concl. 15. a. No concl. b. $\angle ABC$ and $\angle DBF$ are not vert. \angle s. c. No concl.
d. $\angle RVU \cong \angle SVT$, $\angle RVT \cong \angle SVU$ 17. a. Diags. are \cong . b. No concl. c. No concl. d. $STAR$ is not
a rect. 19. contrapositive 21. Statement: If $m\angle A + m\angle B \neq 180$, then $m\angle D + m\angle C \neq 180$.
Contrapositive: If $m\angle D + m\angle C = 180$, then $m\angle A + m\angle B = 180$. Given: $m\angle D + m\angle C = 180$ Prove:
 $m\angle A + m\angle B = 180$ Proof: 1. $m\angle D + m\angle C = 180$ (Given) 2. $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$ (If s-s. int. \angle s supp., lines \parallel .)
3. $m\angle A + m\angle B = 180$ (If \parallel lines, s-s. int. \angle s supp.)

Mixed Review Exercises, Page 212

1. sometimes 2. sometimes 3. always 4. never 5. always 6. always 7. sometimes
8. $m\angle 1 = 60$, $m\angle 2 = 75$, $m\angle 3 = 45$, $m\angle 4 = 60$ 9. 95