

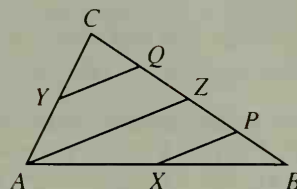
Written Exercises, Pages 180–182

1. 12, 12 3. 4 5. a. 40 b. 20 c. 26 d. 34 7. D, E 9. D, F 11. 6 13. 11
 15. 3, 2 17. $x = 4, y = 2$ 19. 1. $\overline{BE} \parallel \overline{MD}$; M is the midpt. of \overline{AB} . (Given) 2. D is the midpt. of \overline{AE} . (Thm. 5-10) 3. $\overline{DE} \cong \overline{AD}$ (Def. of midpt.) 4. $ABCD$ is a \square . (Given) 5. $\overline{AD} \cong \overline{BC}$ (Thm. 5-1) 6. $DE = BC$ (Trans. Prop.)

23. Given: X, Y , and Z are the midpts. of \overline{AB} , \overline{AC} , and \overline{BC} , resp.; P and Q are midpts. of \overline{BZ} and \overline{CZ} , resp.
 Prove: $PX = QY$

Key steps of proof: 1. $PX = \frac{1}{2}AZ$; $QY = \frac{1}{2}AZ$ (Thm. 5-11, part (2))

2. $PX = QY$ (Subst.)



Self-Test 1, Page 182

1. may be 2. must be 3. must be 4. cannot be 5. See page 172. 6. a. If 3 \parallel lines cut off \cong seg. on one trans., then they cut off \cong seg. on every trans. b. $x = 6, y = 19$ 7. 1. $ABCD$ is a \square . (Given)
 2. \overline{AC} and \overline{BD} bis. each other. (Diags. \square bis. each other.) 3. O is the midpt. of \overline{BD} . (Def. of bis.) 4. M is the midpt. of \overline{AB} . (Given) 5. $MO = \frac{1}{2}AD$ (Thm. 5-11) 8. 1. $PQRS$ is a \square . (Given) 2. $\overline{SR} \parallel \overline{PQ}$; $\overline{SP} \parallel \overline{RQ}$ (Def. of \square) 3. $m\angle QPR = m\angle SRP$ (If lines \parallel , alt. int. $\angle \cong$.) 4. \overline{PX} bis. $\angle QPR$; \overline{RY} bis. $\angle SRP$. (Given)
 5. $m\angle RPX = \frac{1}{2}m\angle QPR$; $m\angle PRY = \frac{1}{2}m\angle SRP$ (\angle Bis. Thm.) 6. $\frac{1}{2}m\angle QPR = \frac{1}{2}m\angle SRP$ (Mult. Prop. of $=$) 7. $m\angle RPX = m\angle PRY$ (Subst.) 8. $\overline{YR} \parallel \overline{PX}$ (If alt. int. $\angle \cong$, lines \parallel .) 9. $RYPX$ is a \square . (Def. of \square)

Written Exercises, Pages 187–189

1. all 3. all 5. all 7. rhom., sq. 9. rect., sq. 11. 25, 65, 65, 90 13. 10 15. $13\frac{1}{2}$
 17. 32, 58, 58 19. $\frac{1}{2}$ 21. (2, 5); no 23. (4, 6); yes 25. 15 27. 60 29. 1. $ABZY$ is a \square . (Given) 2. $\overline{BZ} \cong \overline{AY}$ (Thm. 5-1) 3. $\overline{AY} \cong \overline{BX}$ (Given) 4. $\overline{BZ} \cong \overline{BX}$ (Trans. Prop.) 5. $\angle 1 \cong \angle 2$ (Isos. \triangle Thm.) 6. $\overline{BZ} \parallel \overline{AY}$ (Def. of \square) 7. $\angle 2 \cong \angle 3$ (If lines \parallel , corr. \angle are \cong .) 8. $\angle 1 \cong \angle 3$ (Trans. Prop.)
 31. 1. $QRST$ is a rect.; $RKST$ and $JQST$ are \square . (Given) 2. $\overline{KS} \cong \overline{RT}$; $\overline{JT} \cong \overline{QS}$ (Thm. 5-1) 3. $\overline{RT} \cong \overline{QS}$ (Diags. of rect. \cong .) 4. $\overline{JT} \cong \overline{KS}$ (Subst.) 37. square 39. 6, 8

Mixed Review Exercises, Page 189

1. 13 2. 20 3. 11 4. 9 5. 8.2 6. -1.5 7. 1 8. 3.45 9. a. 23 b. 2 c. 4
 d. -6

Written Exercises, Pages 192–194

1. 12 3. 15 5. 9 7. 4 9. 6 11. $x = 10; 40, 40, 140, 140$ 13. $BE = \frac{1}{2}(AD + CF)$
 15. 13, 39 17. 9, 15 19. $CF = 3 \cdot AD$, but $17 \neq 3 \cdot 5$. 21. rect. 23. rhom. 25. \square
 27. Given: Trap. $ABXY$ with $\overline{BX} \cong \overline{AY}$

Prove: $\angle 1 \cong \angle 3$; $\angle ABX \cong \angle A$

Key steps of proof: 1. $ABZY$ is a \square . (Def. of \square) 2. $\angle 1 \cong \angle 2$ (Isos. \triangle Thm.) 3. $\angle 2 \cong \angle 3$ (If lines \parallel , corr. \angle are \cong .) 4. $\angle 1 \cong \angle 3$ (Trans. Prop.) 5. $\angle ABX \cong \angle A$ (Supps. of $\cong \angle$ are \cong) 29. a. rect.
 b. rect. 33. rhom. 35. a. Drawings may vary. b. The diags. must be \cong .

