

Written Exercises, Pages 216–217

1. Assume temp. that $m\angle B \neq 40$. 3. Assume temp. that $a - b = 0$. 5. Assume temp. that $\overleftrightarrow{EF} \parallel \overleftrightarrow{GH}$.
7. Assume temp. that $\angle Y$ is a rt. \angle . Since $m\angle X = 100$, this contradicts Thm. 3-11 Cor. 3. The temp. assumption must be false. It follows that $\angle Y$ is not a rt. \angle . 11. Assume temp. that planes P and Q do not intersect, that is, they are \parallel . The lines in which plane N intersects planes P and Q , \overleftrightarrow{AB} and \overleftrightarrow{CD} , must be \parallel . This contradicts the given info. that $\overleftrightarrow{AB} \nparallel \overleftrightarrow{CD}$. The temp. assumption must be false. It follows that planes P and Q intersect. 15. Assume temp. that n does not int. k . Since n and k are coplanar, n and k must be \parallel . Then P is on n and l , and n and l are both \parallel to k . This contradicts the thm. which states that through a pt. outside a line there is exactly 1 line \parallel to the given line. The temp. assumption must be false. It follows that n does int. k .
17. Assume temp. that there is an n -sided reg. polygon with an interior \angle of meas. 155. Then the meas. of each ext. \angle is 25 and $25n = 360$. This contradicts the fact that there is no whole number n such that $25n = 360$. The temp. assumption must be false. It follows that there is no reg. polygon with an interior \angle of meas. 155.

Self-Test 1, Page 218

1. True 2. True 3. False 4. False 5. If $\triangle ABC$ is not acute, then $m\angle C = 90$. False
6. If $m\angle C = 90$, then $\triangle ABC$ is not acute. True 7. C 8. a. $ABCD$ is not a rhom. b. No concl.
c. No concl. d. $GHIJ$ is a \square . 9. Assume temp. that $AC \neq 14$. 10. d, b, a, c

Written Exercises, Pages 222–223

1. 3, 15 3. 0, 200 5. $a - b, a + b$ 7. $\angle 2$ 9. $\angle 3$ 11. \overline{WT} 13. \overline{WY}
15. $c > d > e > b > a$ 17. $m\angle 2 > m\angle X > m\angle XZY > m\angle Y > m\angle 1$ 19. 1. $EFGH$ is a \square ;
 $EF > FG$ (Given) 2. $HG > EH$ (Thm. 5-1 and Subst.) 3. $m\angle 1 > m\angle 2$ (Thm. 6-2)

Written Exercises, Pages 231–232

1. $m\angle 1 > m\angle 2$; SSS Ineq. 3. $>$; $>$ 5. $<$; $>$ 7. $<$ 9. $>$ 11. 1. $m\angle SUV > m\angle STU$ (Ext. \angle Ineq. Thm.) 2. $\overline{TU} \cong \overline{US} \cong \overline{SV}$ (Given) 3. $m\angle SVU = m\angle SUV$ (Isos. \triangle Thm.) 4. $m\angle SVU > m\angle STU$ (Subst.) 5. $ST > SV$ (Thm. 6-3) 13. Key steps of proof: 1. $m\angle P > m\angle Q$ (SSS Ineq. Thm.)
2. $m\angle PCA + m\angle A + m\angle P = 180$; $m\angle QCB + m\angle QBC + m\angle Q = 180$ (Thm. 3-11) 3. $m\angle PCA = m\angle A$; $m\angle QCB = m\angle QBC$ (Isos. \triangle Thm.) 4. $m\angle PCA < m\angle QCB$ (Subst.)

Self-Test 2, Page 233

1. \overline{XY} 2. \overline{OD} 3. $<$ 4. $=$ 5. $>$ 6. 1, 11 7. cannot be 8. must be 9. may be

Chapter Review, Pages 235–236

1. $>$ 3. $=$ 5. $>$ 7. No concl. 9. Barbara is at least 18 years old. 11. $m\angle T$ 13. $<$
15. $>$ 17. $=$

Algebra Review, Page 237

1. $\frac{1}{5}$ 3. $\frac{a}{2}$ 5. $\frac{1}{3}$ 7. $-4y^2$ 9. $\frac{ab}{2c}$ 11. $3x - 2y$ 13. $\frac{1}{3}$ 15. $t + 1$ 17. $\frac{b+5}{b-7}$
19. $\frac{3(x-4)}{3x-4}$

Preparing for College Entrance Exams, Page 238

1. A 2. A 3. B 4. B 5. B 6. E 7. E 8. C

Cumulative Review, Page 239

1. 57 3. a. Yes; SAS b. Yes; ASA c. No d. Yes; AAS 5. a. \overline{YZ} b. \overline{XZ} 7. 109, 71
9. Assume temp. that $\angle Q$, $\angle R$, and $\angle S$ are all 120° angles. Then $m\angle P > 0$ and $m\angle Q + m\angle R + m\angle S + m\angle P > 360$. This contradicts the thm. that states the sum of the int. \angle s of a quad. $= 360$. Therefore, the temp. assumption must be false. It follows that $\angle Q$, $\angle R$, and $\angle S$ are not all 120° angles.