Self-Test 2, Page 320

1. $\frac{7}{24}$ **2.** $\frac{24}{25}$ **3.** $\frac{7}{25}$ **4.** $\frac{24}{7}$ **5.** 74 **6.** 74 **7.** 109 **8.** 113 **9.** about 45 m

Chapter Review, Pages 323–324

1. 6 **3.** $5\sqrt{6}$ **5.** $3\sqrt{5}$ **7.** $7\sqrt{2}$ **9.** acute **11.** rt. **13.** $5\sqrt{3}$ **15.** 16 **17. a.** 1.5 **b.** $\frac{2}{3}$ **c.** 34 **19. a.** $\frac{12}{13}$ **b.** $\frac{12}{13}$ **c.** 67 **21.** 57 **23.** 23

Preparing for College Entrance Exams, Page 326

1. A **2.** C **3.** B **4.** C **5.** E **6.** A **7.** C **8.** A **9.** B **10.** C

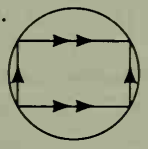
Cumulative Review, Page 327

1. Seg. Add. Post. **3.** corollary **5.** contrapositive **7.** $1:\sqrt{2}$ **9. a.** If a $\triangle$ is equiangular, then it is isos. **b.** If a $\triangle$ is isos., then it is equiangular. **11.** 36 **13.** 20 **15.** Since $\overline{AX}$ is a median, $\overline{BX} \cong \overline{CX}$. Since $\overline{AX}$ is an altitude, $\angle AXB \cong \angle AXC$. Thus, $\triangle AXB \cong \triangle AXC$ (SAS) and $\overline{AB} \cong \overline{AC}$ (CPCT). By def., $\triangle ABC$ is isos. **17.** 1. $\angle WXY \cong \angle XZY$ (Given) 2. $\angle Y \cong \angle Y$ (Reflex.) 3. $\triangle XYW \sim \triangle ZYX$ (AA~) 4. $\frac{XY}{ZY} = \frac{WY}{XY}$ or $(XY)^2 = WY \cdot ZY$ (Corr. sides of $\sim$ $\triangle$ are in prop.)

Chapter 9

Written Exercises, Pages 330–331

1. The midpts. lie on a diam. $\perp$ to the given chords. **3. b.** It is equidist. from the vertices. **c.** at the midpt. of the hyp. **d.** 5 **5.** 8, 22 **9.**



13. 24 **15.** $12\sqrt{3}$ **17. a.** rhom.; $\odot Q \cong \odot R$ so $\overline{QC}$, $\overline{QD}$, $\overline{RC}$, and $\overline{RD}$ are $\cong$. **b.** Diags. of rhom. are $\perp$ bis. of each other. **c.** 16 **19.** $4\sqrt{6}$

Extra, Page 332

1. 4 odd, 1 even; cannot be traced **3.** 2 odd, 6 even; can be traced **5.** There are more than 2 odd vertices.

Written Exercises, Pages 335–337

1. 8 **3.** 12 **5.** 8.2 **7. a.** $\overline{AB} \cong \overline{CD}$ Proof: 1. Draw $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ int. at Z. (Through any 2 pts. there is ex. 1 line.) 2. $ZA + AB = ZB$; $ZC + CD = ZD$ (Seg. Add. Post.) 3. $ZB = ZD$ (Thm. 9-1 Cor.) 4. $ZA + AB = ZC + CD$ (Subst.) 5. $ZA = ZC$ (Thm. 9-1 Cor.) 6. $\overline{AB} \cong \overline{CD}$ (Subtr. Prop. =) **b.** Yes **9. a.** square; $\overline{XZ} \perp \overline{OX}$, so $\overline{XZ} \parallel \overline{OY}$. Similarly, $\overline{ZY} \parallel \overline{OX}$, so $OXZY$ is a rect. Since $OX = OY$, $OXZY$ is a square. **b.** $5\sqrt{2}$ **11.** $\overline{AR} \perp \overline{RS}$ and $\overline{BS} \perp \overline{RS}$ (Thm. 9-1) so $\overline{AR} \parallel \overline{BS}$. Then $\angle A \cong \angle B$ and $\triangle ARC \sim \triangle BSC$ (AA~), so $\frac{AC}{BC} = \frac{RC}{SC}$. (Corr. sides of $\sim$ $\triangle$ are in prop.) **13.** Two planes tan. to a sphere at the endpts. of a diam. are $\parallel$. **15.** $RA = RC$ and $SB = SC$ (Thm. 9-1 Cor.), so $PR + RS + SP = PA + PB$ (Subst.) **17.** 15 (trapezoid) **19. a.** G is the midpt. of $\overline{EF}$. Key steps of proof: 1. $GE = GH$; $GH = GF$ (Thm. 9-1 Cor.) 2. $GE = GF$ (Trans. Prop.) **b.** $m\angle EHF = 90$. Key steps of proof: 1. $m\angle E = m\angle GHE$; $m\angle F = m\angle GHF$ (Isos. $\triangle$ Thm.) 2. $m\angle E + m\angle GHE + m\angle F + m\angle GHF = 180$ (Thm. 3-11) 3. $2m\angle GHE + 2m\angle GHF = 180$ (Subst.) 4. $m\angle EHF = 90$ (Div. Prop. =) **21. a.** 8 **b.** infinitely many **23.** $2\sqrt{2}$

Mixed Review Exercises, Page 337

1. 15 **2.** $9\sqrt{2}$ **3.** $2\sqrt{7}$