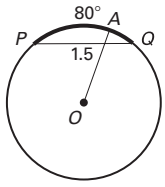
2. diameter **3.** The center point; Diameters are chords that pass through the center. Since each of the bisectors are diameters, then any point they have in common must be the center. **4.** Place a compass with the needle on the center point and the pencil tip on some point on the partial circle. Draw the circle.

Challenge Practice

1. 10 units **2.** $3\sqrt{5}$ units

3. no; no; *Sample answer:*



4. $AC = AD = AE = EF$. $\triangle ACD \cong \triangle EAF$ (SAS congruence postulate).Therefore, $\overline{CD} \cong \overline{EF}$.

5. 184 **6.** 30

Lesson 10.4

Teaching Guide

1. *Sample answer:* If point D lies in the interior of $\angle ABC$, then the $m\angle ABD + m\angle DBC = m\angle ABC$; to find the measures of unknown angles; angles whose sides form two pairs of opposite rays; they are equal; two adjacent angles whose non-common sides are opposite rays; they are supplementary.

2. a four-sided polygon; 360°

3. when both pairs of opposite sides are parallel; they are congruent; 180°

Practice Level A

1. 79° **2.** 12° **3.** 90° **4.** 80° **5.** 152° **6.** 180°

7. 40° **8.** 16° **9.** 52° **10.** 34° **11.** 31°

12. 62° **13.** 130° **14.** 112° **15.** 180° **16.** 62°

17. 248° **18.** $\angle C \cong \angle D$, $\angle E \cong \angle F$

19. $\angle W \cong \angle Z$, $\angle X \cong \angle Y$ **20.** no; The 70° and 130° angles are not supplementary. **21.** yes

22. yes **23.** $x = 118$, $y = 118$ **24.** $x = 112$, $y = 76$ **25.** $x = 90$, $y = 82$ **26.** $x = 105$, $y = 75$

27. $x = 66$, $y = 66$ **28.** $x = 91.5$, $y = 106$

29. $m\angle A = 40°$, $m\angle C = 32°$ **30.** $m\angle A = 73°$, $m\angle C = 31°$ **31.** $m\angle A = 45°$, $m\angle C = 72°$

32. $m\angle A = 90°$, $m\angle B = 120°$, $m\angle C = 90°$

Practice Level B

1. B **2.** 58° **3.** 140° **4.** 46° **5.** 63° **6.** 28°

7. 123° **8.** 90° **9.** 42° **10.** 58° **11.** 48°

12. 58° **13.** 42° **14.** 96° **15.** 180°

16. $x = 14$, $y = 38$ **17.** $x = 58$, $y = 29$

18. $x = 72$, $y = 90$ **19.** $x = 39$, $y = 29$

20. $x = 16$, $y = 14$ **21.** $x = 6$, $y = 36.5$

22. D **23.** $\angle AED \cong \angle BEC$; Theorem 10.8; Angle-Angle Similarity Postulate **24.** $\angle ADB$ and $\angle ACB$ **25.** Given; $\overline{AB} \cong \overline{CD}$; $\angle AEB \cong \angle DEC$; Theorem 10.8; AAS Congruence Theorem

Practice Level C

1. 74° **2.** 66° **3.** 126° **4.** 62° **5.** 132° **6.** 42°

7. 32° **8.** 43° **9.** 120° **10.** 90° **11.** 42.5°

12. 48.5° **13.** 42.5° **14.** 47.5° **15.** 48.5°

16. 95° **17.** 180° **18.** yes **19.** no **20.** no

21. $x = 7$ **22.** $x = 102$ **23.** $x = 23.25$ **24.** $x = 8$

25. $w = 65$, $x = 66$, $y = 115$, $z = 114$

26. $x = 91.5$, $y = 35$, $z = 88.5$

27. *Sample answer:* Draw $\overline{DG}$. Because $\overline{DF}$ is a diameter, $\angle DGF$ is a right angle inscribed in $\odot C$. Then $\overline{DG} \perp \overline{FG}$ and $\angle DGF \cong \angle DGE$, because perpendicular lines intersect to form four right angles. It is given that $\overline{FG} \cong \overline{GE}$ and by the Reflexive Property, $\overline{DG} \cong \overline{DG}$. Then by SAS, $\triangle DGF \cong \triangle DGE$, and corresponding parts of $\cong$ triangles are $\cong$, so $\overline{DF} \cong \overline{DE}$. Therefore, $\triangle DEF$ is isosceles by definition.

28. *Sample answer:* Draw $\overline{PR}$, $\overline{PS}$, and $\overline{PT}$. $\overline{PR}$ is a diameter of $\odot Q$, so $\angle PSR$ is a right angle inscribed in $\odot Q$. Then $\overline{PS} \perp \overline{RT}$, and $\triangle PSR$ and $\triangle PST$ are right triangles. $\overline{PR} \cong \overline{PT}$ because they are radii of the same circle, and $\overline{PS} \cong \overline{PS}$ by the Reflexive Property. So, $\triangle PSR \cong \triangle PST$ by HL. Therefore, $\overline{RS} \cong \overline{RT}$ because they are corresponding parts of $\cong$ $\triangle$s.

Study Guide

1. 70° **2.** 35° **3.** Make the diameter of your circle the diagonal of the house.

4. $m\angle R = 60°$, $m\angle Q = 36°$, $m\angle P = 120°$, $m\angle S = 144°$

Real-Life Application

1. $\angle BDC$ **2.** 4400 mi **3.** 25° **4.** 50° **5.** 8

6. about 3666 mi