# **MODULE 15**

### LESSON 15-1

### Practice and Problem Solving: A/B

- 1. 115°
- 2. 70°
- 3. 60°
- 4. 65°
- 5. 35°
- 6. 120°
- 7. 360°
- 8. right
- 9. exterior
- 10. 20, 60, 100
- 11. 40, 40, 100 or 40, 70, 70

## **LESSON 15-2**

## Practice and Problem Solving: A/B

- 1. 50°
- 2. 6.3
- 3. 60°
- 4.4  $\frac{1}{2}$  yd
- 5. 65°
- 6. 8
- 7.



K

30°.  $\overline{KL}$ ,  $\overline{LM}$ , and  $\overline{MK}$  are congruent because they are the sides of an equilateral triangle.  $\overline{MJ}$  is also congruent to those three sides because M is the midpoint of  $\overline{JL}$ . Angle KML is 60° because it is in an equilateral triangle. Angles J and MKJ have the same measure because they are opposite congruent sides in an isosceles triangle. Their sum is 60°, so each one is 30°.

8. It is given that circles *B* and *C* are congruent.  $\overline{AB}$  is a radius of circle *B*,  $\overline{AC}$ 

is a radius of circle *C*, and  $\overline{BC}$  is a radius of both circles. All three segments are congruent because the radii of congruent circles are congruent. Therefore  $\Box ABC$ is equilateral by definition because all three of its sides are congruent.

9. 58.1 ft

## LESSON 15-3

### Practice and Problem Solving: A/B

- 1. ∠*F*; ∠*D*; ∠*E*
- 2.  $\overline{HI}$ ;  $\overline{GH}$ ;  $\overline{GI}$
- 3. ∠Y; ∠X; ∠Z
- The three segments cannot make a triangle because 8 + 6 < 15; the two shorter sides together do not reach from one end of the longer side to the other.
- 5. 0 < *b* < 2*s*; 0 < *A* < 180°

If the congruent sides are very close together, the base length is close to 0, and the measure of the angle opposite the base is close to 0. If the congruent sides are very spread out, the base is close to 2s (the combined length of the congruent sides), and the angle is close to  $180^{\circ}$ .

- 6. between 7 and 23 feet
- 7. Renaldo could travel between 8562 miles and 15,502 miles.

## LESSON 15-4

### Practice and Problem Solving: A/B

- 1. 15.5
- 2. 19
- 3.  $\frac{7}{2}$
- 4. 53
- 4.00
- 5.26
- 6. 24
- 7. (2.5, 2.5)

8. (0, 3.25)

Graph for problems 9 and 14:



15. circumcenter

#### LESSON 15-5

#### Practice and Problem Solving: A/B

- 1. 27.5°
- 2. √2
- 3.90
- 4.9
- 5. 23°
- 6. 54°
- 7. 36°
- 8.64.3
- 9.64.3
- 10. Possible answer: Raleigh needs to find the incircle of the triangle. The incircle just touches all three sides of the triangle, so it is the largest circle that will fit. The incircle can be found by drawing the angle bisector from each vertex of the triangle. The incircle is drawn with the incenter as the center and a radius equal to the distance to one of the sides.





Practice and Problem Solving: A/B

- 1. 6 2.  $100^{\circ}$ 3.  $80^{\circ}$ 4. 2 ft 5.  $4\frac{1}{2}$  ft
- 6. 9 ft
- 7. 105°
- 8. 75°
- 9. 105°



- 11. 3
- 12. 2
- 13. 8; 4
- 14. See graph.
- 15.  $\frac{1}{6}$ ;  $\frac{1}{6}$
- 16. If two lines have the same slope they are parallel.  $\overline{IH}$  and  $\overline{JG}$  have the same slope so they are parallel.

#### LESSON 15-7

#### Practice and Problem Solving: A/B

- 1. rhombus
- 2. perpendicular
- 3. diagonals
- 4. rhombus

- 5. rectangle
- 6. Not valid; Possible explanation: You need to know that  $\overline{AC} \perp \overline{BD}$ .
- 7. Not valid; Possible explanation: You need to know that  $\overline{AC}$  and  $\overline{BD}$  bisect each other.
- 8. parallelogram
- 9. rectangle
- 10. rhombus
- 11. rectangle; rhombus