Warm Up 53

1. right triangle
2. 93.5 in^2
3. $\sqrt{17}$:1

Lesson Practice 53

a. $31\sqrt{2}$ yd
b. $\frac{63\sqrt{2}}{2}$ m
c. 61.5 in.
d. 34 mi
e. 11,250 ft^2

Practice 53

1. Greater than 66° and less than 84°.

2. cube

3. $\frac{5\sqrt{2}}{2}$

4. No, only the centroid is a center of gravity.

5. sometimes

6. $x \approx 8.6$, $y \approx 10.6$

7. a. 23 in.

   b. $20\frac{1}{4}$ in^2

8. Yes, since an isosceles right triangle has two congruent angles (x) and one right angle, the Triangle Sum Theorem states that $x + x + 90° = 180°$, so $x = 45°$.

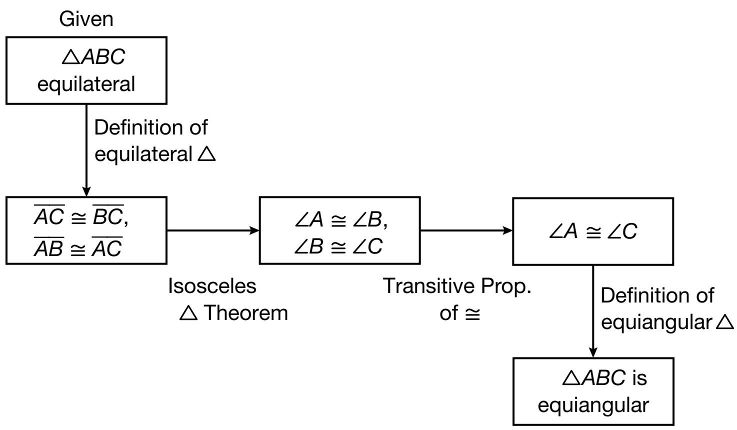
9. $\overline{NM}$ is a radius, $\overline{LM}$ is a chord, $\overleftrightarrow{KM}$ is a tangent, and the line through L is a tangent

10. $\sqrt{2}x$ in.

11. $\angle B \cong \angle D$, $\angle ACB \cong \angle DCE$, so $\triangle ABC \sim \triangle EDC$ by Angle-Angle Similarity

12. A pair of corresponding side lengths, or the perimeter of each of the triangles.

13.



14. 8π m^2

15. 18

16. $x = 1$

17. Answers will vary. Any value for XY that is between 0 and 26 is valid. $\angle Z$ is 37°, which is less than $\angle I$. Therefore, $XY < GH$.

18. 17.5

19. 35°

20. 8.7 inches

21. B

22. In the figure, the four pentagonal sides are congruent, but when the net is folded into the 3D figure, it is not closed.

23. 10.4 in.

24. (4, 3)

25. 44 units

26. SAS Similarity Theorem

27. $16\sqrt{2}$ yd

28. $\triangle ABC$ and $\triangle DEF$ are right triangles, hypotenuses $\overline{AC} \cong \overline{DF}$, and acute $\angle C \cong \angle F$; so by the HA Congruence Theorem, $\triangle ABC \cong \triangle DEF$.

29. A rhombus is defined by having four congruent sides. A square always has four congruent sides. Therefore, a square is always a rhombus.

30. The clock tower is equidistant from the other two. Since $m\angle ADB = 40° = m\angle BDC$, $\overleftrightarrow{DB}$ bisects $\angle ADC$. So because a line bisecting the vertex angle in an isosceles triangle is the perpendicular bisector of the base (Theorem 51-3), B lies on perpendicular bisector of $\overline{AC}$ and by the Perpendicular Bisector Equidistance Theorem, $AB = BC$.