Warm Up 79

1. secant
2. 7π inches
3. A

Lesson Practice 79

a. Draw $\overline{EG}$. By the Exterior Angle Theorem, $m\angle DEG = m\angle EFG + m\angle EGF$, so $m\angle EFG = m\angle DEG - m\angle EGF$. The measure of an angle formed by a tangent and a chord is equal to half the measure of the intercepted arc, so $m\angle DEG = \frac{1}{2}m\widehat{EHG}$ and $m\angle EGF = \frac{1}{2}m\widehat{EG}$. By substitution, $m\angle EFG = \frac{1}{2}m\widehat{EHG} - \frac{1}{2}m\widehat{EG}$. By the Distributive Property of Equality, $m\angle EFG = \frac{1}{2}(m\widehat{EHG} - m\widehat{EG})$.

b. 85°

c. 33°

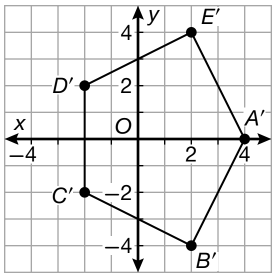
d. 38°

e. 26°

Practice 79

1. C

2. 100 km/h north

3. 

4. A

5. $x^2 + y^2 = 2.25$

6. Since $2.4 + 0.55$ is not greater than 3, sides of these three lengths cannot form a triangle.

7. $S = (\sqrt{2} + 1)\pi r^2$

8. 80°

9. 12

10. $3 < x < 57$

11. It has one line of symmetry and no rotational symmetry.

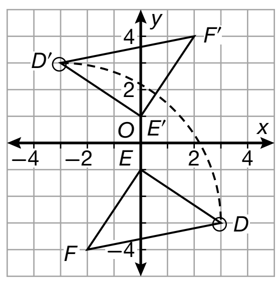
12. D

13. $\langle 2, -4 \rangle$

14. 1004.8 mm^3

15. $\angle E \cong \angle C$ and $\angle D \cong \angle B$ because corresponding angles are congruent, and $\frac{3}{9} = \frac{7}{21}$, so both SAS Similarity and AA Similarity can be used. Note that $\angle A \cong \angle A$ can also be used to show AA Similarity.

16. 4.24

17. 

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$D'(-3, 3), E'(0, 1), F'(2, 4)$

18. 2 ounces

19. The point of tangency is $(2, -1)$. The tangent line is the vertical line $x = 2$. The radius of $\odot A$ is 3 and the radius of $\odot B$ is 2.

20. **a.** Since B is the tangent point between circle O and AC, $\angle ABO$ is a right angle, so $\triangle AOB$ and $\triangle BOC$ are right triangles. Also, $\angle AOC$ is a right angle (property of a rhombus); $\angle BAO$ and $\angle BOA$ are complementary, and $\angle BOC$ and $\angle BOA$ are also complementary. So, $\angle BAO \cong \angle BOC$. Since $\angle ABO$ and $\angle CBO$ are congruent, by the AA Similarity Postulate, $\triangle AOB$ and $\triangle BOC$ are similar.

b. 338 mm

21. 70°

22. $A'(4, 2)$, $B'(1, -5)$

23. $\triangle BCD$ and $\triangle EFG$ are right triangles, legs $\overline{CD} \cong \overline{FG}$, and since by the Triangle Sum Theorem, $\angle D$ is congruent to $\angle G$, by the LA Congruence Theorem, $\triangle BCD \cong \triangle EFG$.

24. $(x - 5.2)^2 + (y + 3.4)^2 = 12.25$

25. Since two points determine a line, draw $\overline{JM}$. By the Exterior Angle Theorem, $m\angle JMN = m\angle JLN + m\angle KJM$, so $m\angle JLN = m\angle JMN - m\angle KJM$. By the Inscribed Angle Theorem, $m\angle JMN = \frac{1}{2}m\widehat{JN}$ and $m\angle KJM = \frac{1}{2}m\widehat{KM}$. By substitution, $m\angle JLN = \frac{1}{2}m\widehat{JN} - \frac{1}{2}m\widehat{KM}$. Thus, by the Distributive Property, $m\angle JLN = \frac{1}{2}(m\widehat{JN} - m\widehat{KM})$.

26. To find the length of the hypotenuse, multiply the shorter side length by 2. To find the length of the longer leg, multiply the shorter leg length by $\sqrt{3}$.

27. $10°$

28. 80 in^2

29. faces: 14; vertices: 24; edges: 36; $F - E + V = 2$;
$14 - 36 + 24 = 2$, so the answers fit Euler's Formula.

30. $x = 5$