Answers for Lesson 10-5, pp. 561–563 Exercises

1. 173.8 cm^2

2. 84.3 in.^2

3. 259.8 m^2

4. 2540.5 yd^2

5. **a.** 72

b. 36

c. about 8.1 in.

d. about 11.8 in.

e. about 58.8 in.

f. about 238 in.^2

6. 259.8 ft^2

7. 47.0 in.^2

8. 1131.4 cm^2

9. 8 ft^2

10. 151 m^2

11. 27.7 m^2

12. 18.0 ft^2

13. 7554.0 m^2

14. 311.3 km^2

15. 151.4 mm^2

16. 0.7 ft^2

17. 5523 yd^2

18. **a.** 50 mm^2

b. 116 mm^2

19. Answers may vary. Sample:

1. Find the apothem and the side $\perp$ to apothem using a 30-60-90 $\triangle$ with hyp. 1. Then use the formula $A = \frac{1}{2}ap$.

2. After finding the apothem and the $\perp$ side, the height of the equil. $\triangle$ is the apothem $+ 1$. Then use the formula $A = \frac{1}{2}bh$.

20. 1,459,000 ft^2

21. 20.8 m; 20.8 m^2

22. 45.3 in.; 128 $in.^2$

23. 17.6 ft; 21.4 ft^2

24. 42 cm; 127.3 cm^2

25. 61.2 m; 282.8 m^2

26. 6.2 mi; 3 mi^2

27. D

28. (area of sq. A) = 4 · (area of sq. B)

29. (area of pent. A) ≈ 1.53 · (area of pent. B)

30. (area of hex. A) = (area of hex. B)

31. (area of oct. B) ≈ 1.17 · (area of oct. A)

32. (area of dec. A) = 0.01 · (area of dec. B)

33. 5.0 ft^2

34. **a.** Each central ∠ measures $(360 \div n)$ and $m\angle C = \frac{1}{2}$ that measure or $(180 \div n)$.

b. $\tan C = \frac{s}{1} = s$

c. $s = \tan C$, so $p = n \cdot 2(\tan C)$ or $2n(\tan C)$.

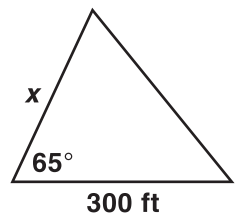
d. Since $a = 1$ and $p = 2n(\tan C)$, $A = \frac{1}{2}ap = \frac{1}{2}(1)(2n \tan C) = n(\tan C) = n\left(\tan \frac{180}{n}\right)$.

e. $X \tan(180/X)$

f. X increases by 1 and Y_1 approaches π.

g. Answers may vary. Sample: 425; as X increases, Y_1 approaches π, so the first 4 viewable decimal places become fixed; the n-gons start to look like a circle of radius 1.

35. Using steps similar to Ex. 34, $A = n\left(\cos \frac{180}{n}\right)\left(\sin \frac{180}{n}\right)$, which also appr. π as n increases.

36. 

320 ft

37. (0.65)