3. $180° \times 8 = 1{,}440°$
4. $1{,}440 \div 10 = 144°$
5. $180° - 144° = 36°$
6. $36° \times 10 = 360°$
7. triangle: $360° \div 120° = 3$ sides
8. octagon
9. $(N-2)180° \Rightarrow ((20)-2)180° = (18)180° = 3{,}240°$
10. $3{,}240° \div 20 = 162°$
    check: $360° \div 20 = 18°$
    $180° - 18° = 162°$
11. $85°$: vertical angles
12. $180° - 85° = 95°$:
    supplementary angles
13. $m\angle JFK = 180° - (85° + 45°) =$
    $180° - 130° = 50°$
14. $m\angle GJK = 90° - m\angle FJG =$
    $90° - 45° = 45°$
    The measure of $\angle\alpha$ is
    unnecessary for solving
    this question.
15. A = average base $\times$ height
    $A = \frac{10+17}{2} \times 6 = \frac{27}{2} \times \frac{6}{1} = \frac{162}{2}$
    $= 81\ m^2$
16. $P = 6 + 10 + 11 + 17 = 44$ m
17. $Y = X - 1$
    $-X + Y = -1$ or
    (multiplying both sides by -1)
    $X - Y = 1$
18. $2X + Y + 4 = 0$
    $Y + 4 = -2X$
    $Y = -2X - 4$
19. $Y = 4X + 2$
    $-4X + Y = 2$ or
    $4X - Y = -2$
20. $X + 2Y - 8 = 0$
    $2Y - 8 = -X$
    $2Y = -X + 8$
    $Y = -\frac{1}{2}X + 4$

Lesson Practice 12A

1. sphere
2. circumference
3. chord
4. radius
5. diameter
6. $\overline{GE}$, $\overline{GC}$, $\overline{GA}$, or $\overline{GD}$
7. sector
8. arc
9. tangent
10. ellipse
11. perpendicular
12. secant
13. $360° - 60° = 300°$
14. 4
15. $86°$: The measure of an intercepted arc is the same as the measure of the central angle that intercepts it.
16. $86° \div 2 = 43°$: The measure of an inscribed angle is half the measure of a central angle intercepting the same arc.
17. $100°$: Answers that are close are acceptable.
18. $100°$: Answers that are close are acceptable, but the answers to 17 and 18 must be the same.

Lesson Practice 12B

1. circumference
2. chord
3. sphere
4. radius
5. radius
6. diameter
7. tangent
8. arc
9. sector
10. two
11. one

12. ellipse
13. $360° - 270° = 90°$
14. 3
15. 44°
16. $\frac{44°}{2} = 22°$
17. 90°
18. 90°

Systematic Review 12C

1. $\overline{CB}$ or $\overline{CD}$
2. tangent
3. $\overline{AB}$
4. secant
5. sphere
6. ellipse
7. circumference
8. 5
9. The measure of an inscribed angle is half the measure of the arc that it intercepts, so it would be $10° \times 2 = 20°$.
10. check with a ruler and protractor
11. 44°: Answers that are close are acceptable.
12. right:
    $\angle 1$ and $\angle 2$ are complementary.
13. yes: $\angle NLP \cong \angle MPL$, and are alternate interior angles.
14. $m\angle 7 = 180° - m\angle 5 = 112°$
    supplementary angles
15. $m\angle 7 = 112°$;
    $m\angle RMN = m\angle 7 = 112°$
    alternate interior angles
16. octagon: $360° \div 45° = 8$ sides
17. quadrilateral: Any answer naming a specific kind of quadrilateral is acceptable.
18. $(N-2)180° \Rightarrow ((7)-2)180° = (5)180° = 900°$
19. $900° \div 7 \approx 128.57°$
20. $360° \div 7$ sides $\approx 51.43°$ per exterior angle
    $180° - 51.43° = 128.57°$
    per interior angle

Systematic Review 12D

1. diameter
2. diameter
3. radius
4. secant
5. three
6. ellipses
7. rectangle, square, rhombus, parallelogram
8. circumference
9. inscribed
10. $35° \times 2 = 70°$
11. $360° - 70° = 290°$
12. PLM or MLP
13. vertical angles
14. $m\angle 1 + m\angle 2 = 90°$ (given)
    $m\angle 1 = 90° - 58° = 32°$
    ($m\angle 5$ is unnecessary information)
15. For this problem it may be helpful to ignore everything except $\triangle LMN$. The measures of the angles in this triangle must add up to 180°:
    $m\angle NLM = m\angle 2 + m\angle 1 =$
    $58° + 32° = 90°$
    $m\angle 3 = 180° - (m\angle NLM + m\angle 5) =$
    $180° - (90° + 68°) =$
    $180° - 158° = 22°$
16. line segment, line, or ray
17. obtuse angle
18. rhombus
19. scalene triangle
20. octagon

Systematic Review 12E

1. ellipse
2. chord
3. radius
4. diameter or chord
5. A
6. arc
7. sector
8. $\frac{1}{2}$
9. perpendicular
10. Check your drawing using a ruler and a protractor.
11. 225°: Answers that are close to this are acceptable.
12. 5
13. 6
14. $180° \times 6 = 1{,}080°$
15. $1{,}080° \div 8 = 135°$
16. $180° - 135° = 45°$
17. $45° \times 8 = 360°$
18. $Y - 2X = 4 \Rightarrow Y = 2X + 4$

    $Y + X = -5 \Rightarrow (2X + 4) + X = -5$

    $3X + 4 = -5$

    $3X = -9$

    $X = -3$

    $Y + X = -5 \Rightarrow Y + (-3) = -5$

    $Y = -2$

    solution $= (-3, -2)$
19. $Y - 4X = 4 \Rightarrow Y = 4X + 4$

    $Y + 2X = -2 \Rightarrow (4X + 4) + 2X = -2$

    $6X + 4 = -2$

    $6X = -6$

    $X = -1$

    $Y - 4X = 4 \Rightarrow Y - 4(-1) = 4$

    $Y + 4 = 4$

    $Y = 0$

    solution $= (-1, 0)$
20. $Y - X = 0 \quad Y = X$

    $Y - 3X = -6 \Rightarrow (X) - 3X = -6$

    $-2X = -6$

    $X = \frac{-6}{-2} = 3$

    $Y - X = 0 \Rightarrow Y - (3) = 0$

    $Y = 3$

    solution $= (3, 3)$

Lesson Practice 13A

1. radius
2. circumference
3. $C = \pi d$ or $C = 2\pi r$
4. $A = \pi r^2$
5. x, y, π (or short axis, long axis, π)
6. square
7. latitude
8. longitude
9. minutes
10. prime meridian
11. $C = 2\pi r \approx (2)(3.14)(3) = 18.84$ in
12. $A = \pi r^2 \approx (3.14)(3^2) = 28.26$ in^2
13. $A = \pi r^2 \approx \frac{22}{7}(7^2) = \frac{22}{7}(49) = 154$ m^2
14. $A = \frac{1}{2}(12) \times \frac{1}{2}(8) \times \pi \approx$

    $(6)(4)(3.14) = 75.36$ ft^2
15. 50°7' N; 8°41' E
16. 18°58' N; 72°50' E
17. 4,082 mi
18. $4{,}082 \times 1.6 = 6{,}531.2$ km

Lesson Practice 13B

1. diameter
2. circumference
3. area
4. length
5. degrees
6. 0; longitude
7. latitude