Section 7.1: Circles and Arcs
Find the circumference of each circle. Leave your answers in terms of $\pi$ and round to the thousandth place.

1. \[ \text{Circumference} = 16 \pi \]
2. \[ \text{Circumference} = 16 \pi \]
3. \[ \text{Circumference} = 3.9 \pi \]

In $\odot C$, $\overline{EA}$ and $\overline{FB}$ are diameters. Identify the following.

4. Two major arcs
5. Two minor arcs
6. Two semicircles
7. A pair of adjacent arcs
8. An acute central angle
9. An obtuse central angle

Find the measure of each arc in $\odot C$.

10. $\overarc{AE}$
11. $\overarc{ED}$
12. $\overarc{DBA}$
13. $\overarc{AED}$
14. $\overarc{ABD}$
15. $\overarc{BD}$

Find the length of each darkened arc. Leave your answers in terms of $\pi$ and round to the thousandth place.

16. 9 in. $120^\circ$
17. 18 ft $30^\circ$
18. 20 m $45^\circ$
19. 24 in. $90^\circ$
20. 16.4 m

Find the value of each variable.

21. $5x^\circ$
22. $x = 20^\circ$
23. $a = 120^\circ$
24. $a = 20^\circ$

Section 7.2: Area of Circles
Find the area of each shaded segment of a circle. Round your answers to the nearest thousandth.

1.
2.
3.
Find the area of each shaded sector of a circle. Leave your answers in terms of $\pi$ and round to the thousandth place.

4. 

6. 

8. 

10. 

5. 

7. 

9. 

11. 

Find the area of each shaded region. Leave your answer in terms of $\pi$ (and the simplest radical form) and round to the nearest thousandth.

12. 

13. 

14. 

15. 

16. 

Section 7.3: Tangent Lines
Assume that lines that appear to be tangent are tangent. $C$ is the center of each circle. Find the value of $x$.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

11. 

12.
Section 7.4: Chords and Arcs

Find the value of \( x \) to the nearest tenth.

1.  

2.  

3.  

4.  

5.  

6.  

7.  

8.  

9.  

10.  

11.  

12.  

13.  

14.  

15.  

Find the radius and \( \overline{AB} \).
Section 7.5: Inscribed Angles

Find the value of each variable. For each circle, the dot represents the center. Lines that appear tangent are.

1. \( x^\circ \)
2. \( z^\circ \)
3. \( 170^\circ \)
4. \( 54^\circ \)
5. \( 220^\circ \)
6. \( 35^\circ \)
7. \( 240^\circ \)
8. \( 100^\circ \)
9. \( 50^\circ \)
10. \( 70^\circ \)

Find each indicated measure for \( \theta \).

21. \( m\angle AB \)
22. \( m\angle C \)
23. \( m\angle BEC \)
24. \( m\angle D \)
25. \( m\angle A \)
26. \( m\angle B \)
27. \( m\angle C \)
28. \( m\angle D \)
Section 7.6: Angle Measures and Segment Lengths

Find the value of each variable.

1. \( x^\circ \) in a circle with an angle of 86°.
2. \( x^\circ \) in a circle with an angle of 60°.
3. \( x^\circ \) in a circle with an angle of 90°.
4. \( x^\circ \) in a circle with an angle of 140°.
5. \( x^\circ \) in a circle with an angle of 150°.
6. \( x^\circ \) in a circle with an angle of 6°.
7. \( x^\circ \) in a triangle with angles 117°, z, and 121°.
8. \( x^\circ \) and \( y^\circ \) in a triangle with angles 34° and 11°.
9. \( x^\circ \) and \( y^\circ \) in a triangle with angles 8° and 2.5°.
10. \( x^\circ \) and \( y^\circ \) in a triangle with angles 8° and 12°.
11. \( x^\circ \) and \( y^\circ \) in a triangle with angles 12 and 8.
12. \( y^\circ \) and \( y+3^\circ \) in a triangle with angles 8 and 7.

Find the diameter of \( \odot O \). A line that appears to be tangent is tangent.
Section 7.7: Equations of Circles

Find the center and the radius of each circle.
1. \(x^2 + y^2 = 36\)  
2. \((x + 1)^2 + (y + 6)^2 = 16\)  
3. \((x - 2)^2 + (y - 7)^2 = 49\)  
4. \((x + 3)^2 + (y - 11)^2 = 12\)

Write the standard equation of each circle.
5. Center \((0, 0)\); \(r = 7\)
6. Center \((-2, -5)\); \(r = \sqrt{2}\)
7. Center \((-5, 4)\); \(r = \sqrt{2}\)
8. Center \((4, 3)\); \(r = 8\)
9. Center \((5, 3)\); \(r = 2\)
10. Center \((-1, 6)\); \(r = \sqrt{5}\)

Graph each circle. Label its center, and state its radius.
11. \(x^2 + y^2 = 25\)
12. \((x + 2)^2 + (y + 4)^2 = 16\)
13. \((x - 3)^2 + (y - 5)^2 = 9\)
14. \((x + 1)^2 + (y - 1)^2 = 36\)

Write an equation for each circle with the given center that passes through the given point.
21. Center \((0, 0)\); point \((3, 4)\)
22. Center \((-4, -3)\); point \((2, 2)\)
23. Center \((5, 9)\); point \((2, 9)\)
24. Center \((7, -2)\); point \((-1, -6)\)

Unit 6 Review

Find the length of each arc. Leave your answer in terms of \(\pi\) and round to the nearest thousandths.

Find the area of each sector.

Lines that appear tangent are tangent. Find the value of each variable.
13. Find \( m \overline{AB} \).

14. \( 165^\circ \)

15. \( 10 \) \( 12 \) \( x \)

16. \( x \) \( 12 \)

17. \( 11 \) \( 12 \) \( x \) \( 20^\circ \)

18. \( 45^\circ \) \( x \) \( 9 \) \( 5 \)

19. \( 9 \) \( 5 \) \( x \) \( 140^\circ \)

20. \( 140^\circ \) \( x \) \( 5 \)

21. \( a^\circ \) \( b^\circ \) \( d^\circ \)

22. \( a^\circ \) \( b^\circ \) \( d^\circ \)

23. \( x \) \( 145^\circ \) \( 45^\circ \)

24. \( 45^\circ \) \( x \)

25. \( 85^\circ \) \( 72^\circ \) \( 30^\circ \)

26. \( 85^\circ \) \( 30^\circ \) \( 116^\circ \)

27. \( 5 \) \( 10 \) \( x \)

28. \( 19 \) \( 9 \) \( 10 \)

29. Find the perimeter.

30. \( A \) \( B \) \( 8 \) \( 6 \)

31. Graph each equation and label the center and radius.

32. \( (x - 2)^2 + (x + 3)^2 = 4 \)

33. \( (x - 2)^2 + (x + 3)^2 = 4 \)

34. \( (x + 3)^2 + y^2 = 9 \)

35. Center (3, 0); point (-2, -4)

36. Center (-3, -4); \( r = 5 \)

37. Center (1, 4); point (-2, 4)

38. Center (-2, 1); \( r = 3 \)