

1. Are circles always similar?

Yes

[G.C.2]

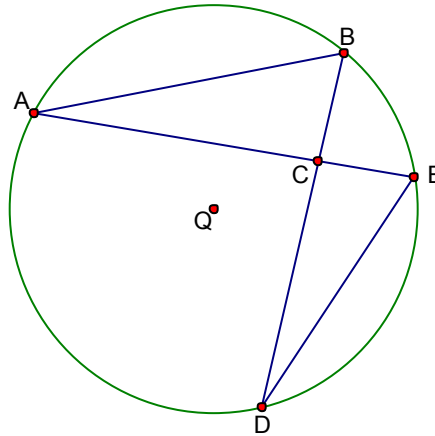
2. What is the definition of a minor arc?

A minor arc is an arc that measures less than  $180^\circ$

[G.C.2]

Questions 1 and 2 refer to the figure below. Use the given information about circle Q to answer questions 1 and 2.

Given  $m\widehat{AB} = 124$   
 $m\widehat{BE} = 46$   
 $m\widehat{ED} = 75$



3. Find  $m\angle ABD =$

57.5°

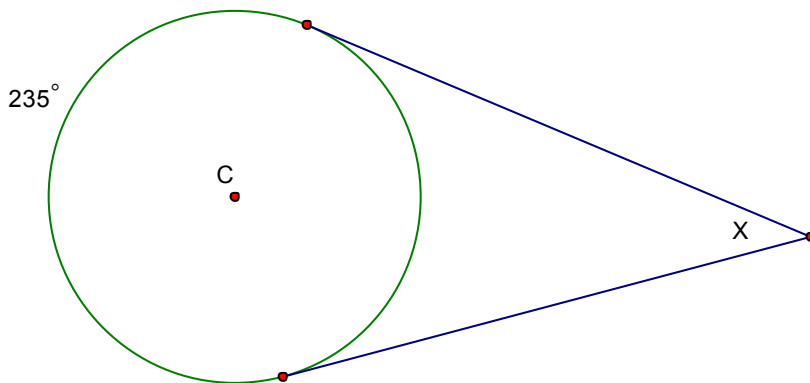
4. Find  $m\angle BDE =$

23°

[G.C.2]

5. Use the given information below to determine the value of x.

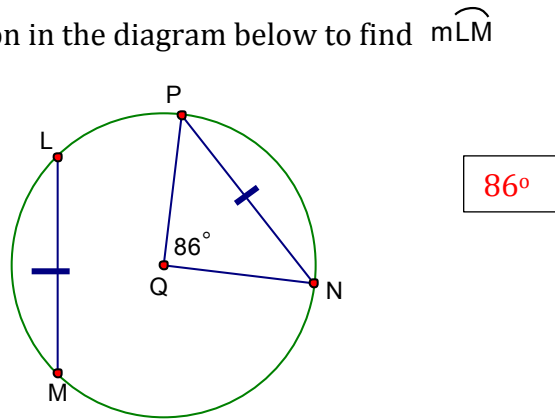
[G.C.2]



55°

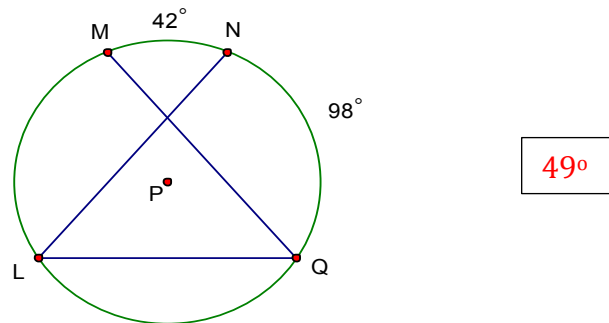
6. Use the given information in the diagram below to find  $m\widehat{LM}$

[G.C.2]



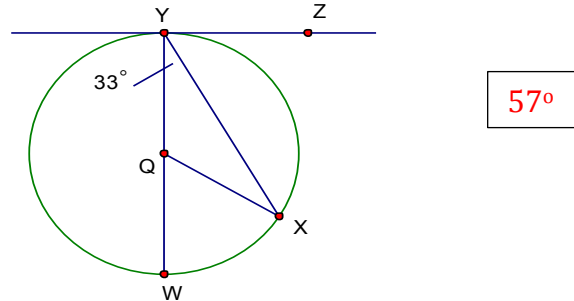
7. In the circle below, P is the center. What is the measure of  $\angle NLQ$ ?

[G.C.2]



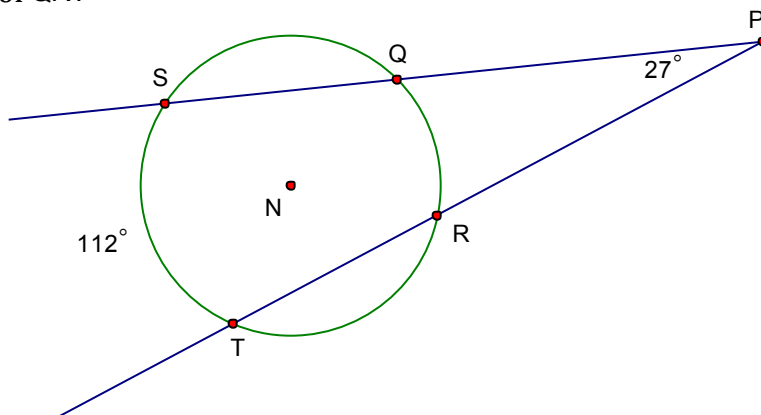
8. In the circle below,  $\overline{YZ}$  is tangent to the circle at point Y, and  $\overline{WY}$  is a diameter. What is the measure of  $\angle XYZ$ ?

[G.C.2]



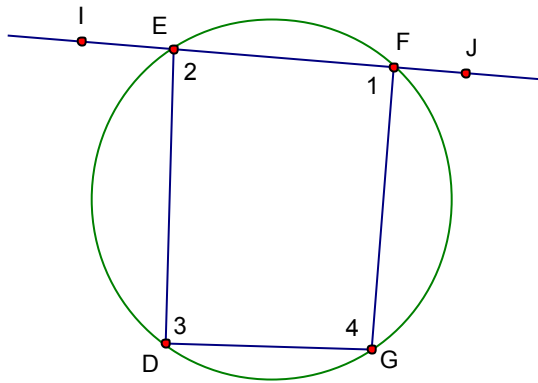
9. In the circle below, N is the center. The measure of  $\angle P$  is  $27^\circ$  and the measure of  $\widehat{QR}$  is  $112^\circ$ . What is the measure of  $\widehat{QR}$ ?

58°



10. Given:  $m\angle IED = 145^\circ$  and  $m\angle JFG = 100^\circ$ , find the measure of each unknown angle (not drawn to scale).

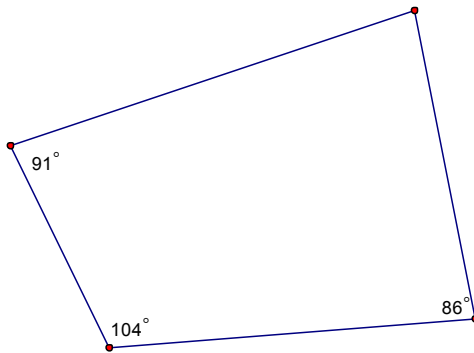
[G.C.3]



- $m\angle 1 = 80^\circ$
- $m\angle 2 = 35^\circ$
- $m\angle 3 = 100^\circ$
- $m\angle 4 = 145^\circ$

11. Can this quadrilateral be inscribed in a circle?

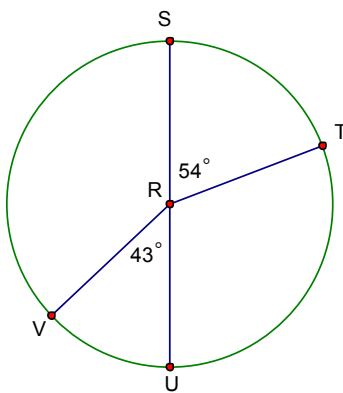
[G.C.3]



No, as the opposite angles given are not supplementary

12. In the figure,  $\overline{US}$  is a diameter of circle R. What type of arc is  $\widehat{STU}$ ?

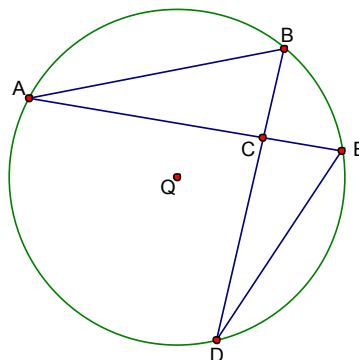
[G.C.2]



Semicircle

13. Use the information below about circle Q to find  $m\angle ACB$ .

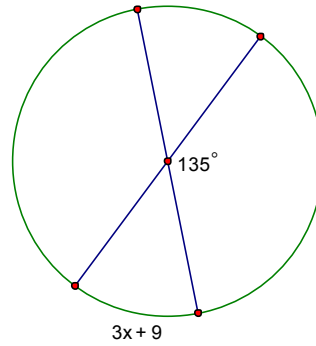
- $m\widehat{AB} = 124$
- $m\widehat{BE} = 46$
- $m\widehat{ED} = 75$



99.5°

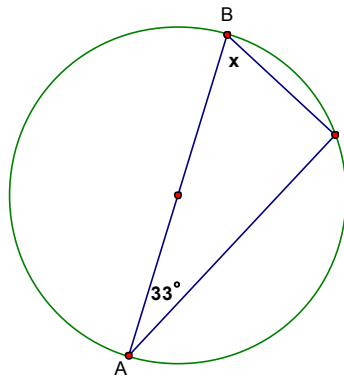
14. Solve for  $x$ . The lines drawn are diameters to the circle.

$x = 12$



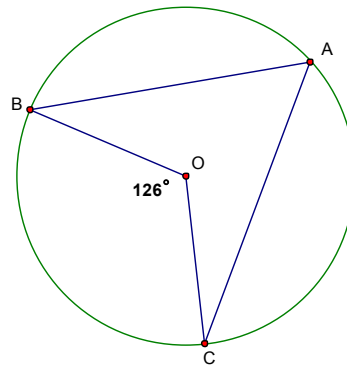
15. Given diameter  $\overline{AB}$ , find  $x$ .

$57^\circ$



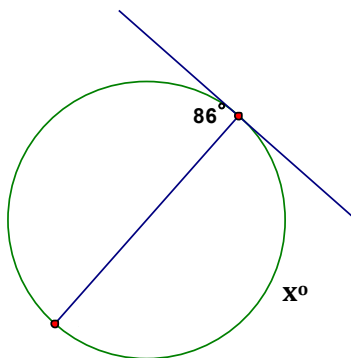
16. Given circle O to the right, determine  $m\angle BAC$ .

$63^\circ$



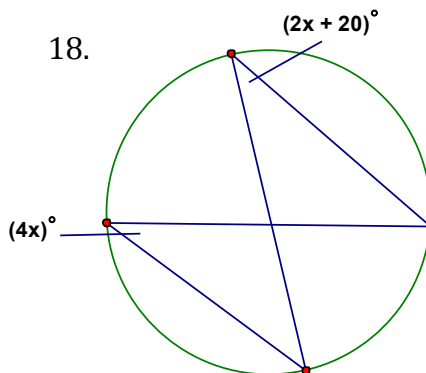
For questions 16 and 17 below, determine the value of  $x$ .

17.



$188^\circ$

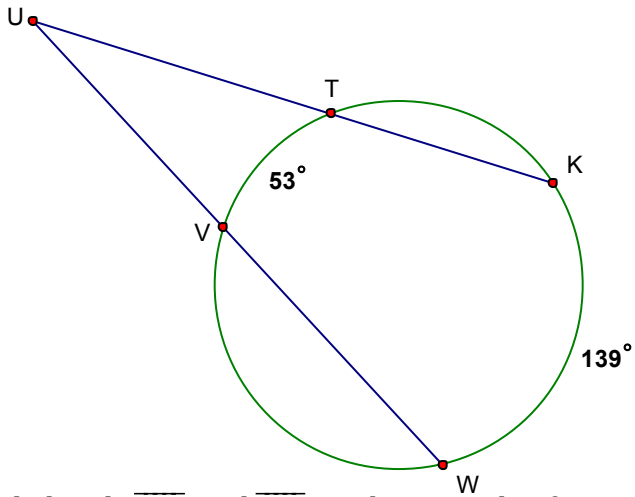
18.



$x = 10$

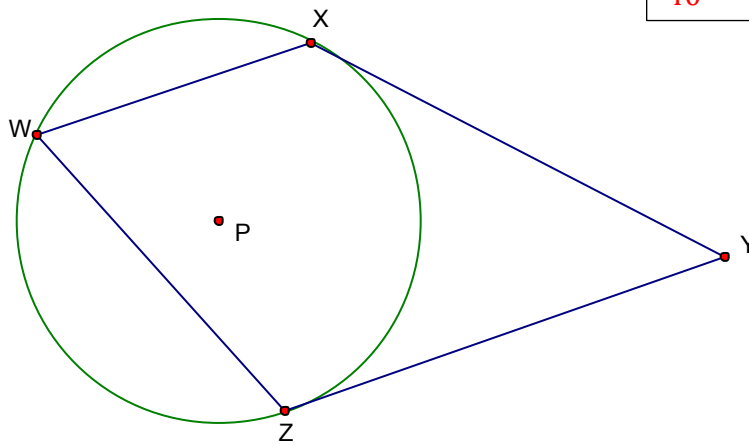
19. Find the measure of  $\angle WUK$ .

$43^\circ$



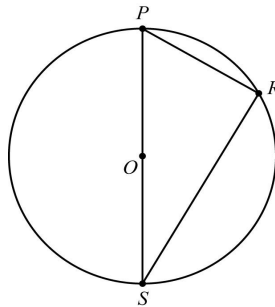
20. Circle P has tangents  $\overline{XY}$  and  $\overline{ZY}$  and chords  $\overline{WX}$  and  $\overline{WZ}$ , as shown in this figure. The measure of  $\angle ZWX = 70^\circ$ . What is the measure, in degrees, of  $\angle XYZ$ ?

$40^\circ$



21. In circle O,  $\overline{PS}$  is a diameter and the measure of  $\widehat{PR}$  is  $72^\circ$ . What is the measure of  $\angle SPR$ ?

- a.  $36^\circ$
- b.  $54^\circ$
- c.  $72^\circ$
- d.  $108^\circ$



not drawn to scale

$54^\circ$

22. Quadrilateral WXYZ is inscribed in this circle.

Which statement must be true?

B

- a.  $\angle W$  and  $\angle Y$  are complementary.
- b.  $\angle W$  and  $\angle Y$  are supplementary.
- c.  $\angle Z$  and  $\angle Y$  are complementary.
- d.  $\angle Z$  and  $\angle Y$  are supplementary.

23. Isosceles triangle XYZ is inscribed in this circle.

$$\overline{XY} \cong \overline{ZY} \text{ \& } m\widehat{YZ} = 108^\circ$$

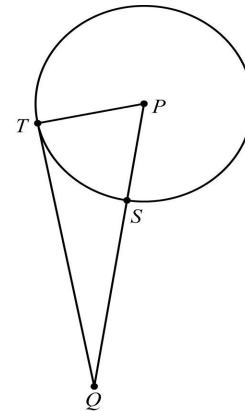
What is the measure of  $\angle XYZ$ ?

C

- a.  $48^\circ$
- b.  $54^\circ$
- c.  $72^\circ$
- d.  $108^\circ$

24. In this diagram,  $\overline{QT}$  is tangent to circle P at point T.

The measure of  $\widehat{\text{minor arc ST}}$  is  $70^\circ$ . What is  $m\angle TQP$ ?



- a.  $20^\circ$
- b.  $25^\circ$
- c.  $35^\circ$
- d.  $40^\circ$

A

25. Points R, S, T, and U lie on the circle.

The measure of  $\widehat{RU}$  is represented by x.

What is the value of x?

- a.  $70^\circ$
- b.  $85^\circ$
- c.  $110^\circ$
- d.  $140^\circ$

B

26. Points A, B, D and E lie on the circle. Point C is outside the circle.

$\overline{AE} \cong \overline{DE}$  &  $m \widehat{BD} = 56^\circ$  and  $m \angle EAC = 84^\circ$

What is the measure of  $\angle ACE$ ?

- a.  $28^\circ$
- b.  $42^\circ$
- c.  $56^\circ$
- d.  $84^\circ$

A

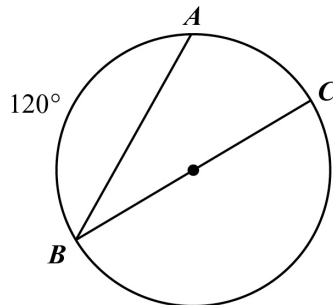
27. Circle P is dilated to form circle P'. Which statement is ALWAYS true?

- a) The radius of circle P is equal to the radius of circle P'.
- b) The length of any chord in circle P is greater than the length of any chord in circle P'.
- c) The diameter of circle P is greater than the diameter of circle P'.
- d) The ratio of the diameter to the circumference is the same for both circles.

D

28. In the circle shown below,  $\overline{BC}$  is a diameter and  $m \widehat{AB} = 120^\circ$ . What is the measure of  $\angle ABC$ ?

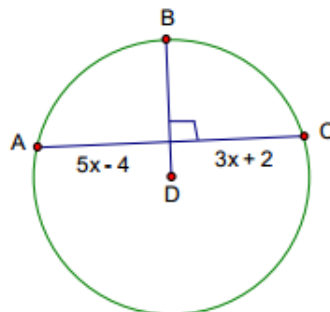
- a)  $15^\circ$
- b)  $30^\circ$
- c)  $60^\circ$
- d)  $120^\circ$



B

29.  $\overline{BD}$  is a radius of Circle D. Solve for AC.

- A. 15
- B. 22
- C. 3
- D. 25



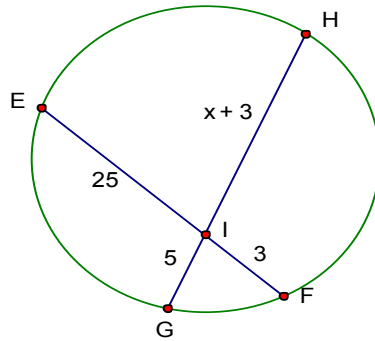
B

Unit 3A Review

**Solutions**

30. Solve for HI.

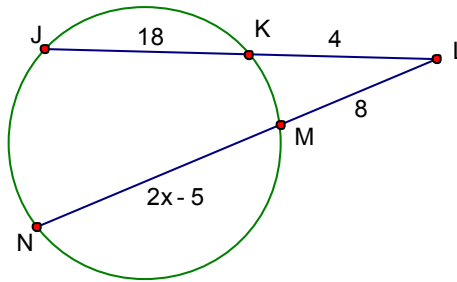
- A. 12
- B. 9
- C. 18
- D. 15



A

31. Solve for LN.

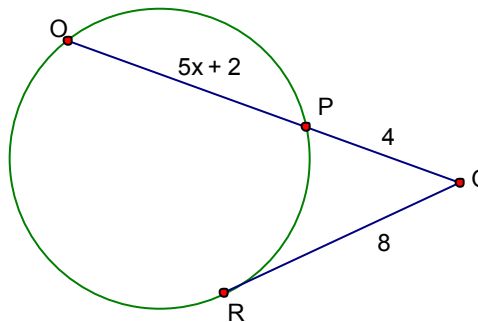
- A. 11
- B. 36
- C. 7
- D. 4



A

32. Solve for OP.

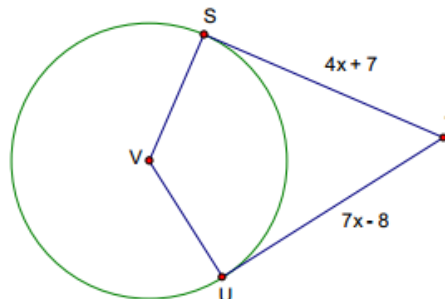
- A. 2
- B. 12
- C. 6
- D. 16



B

33. Solve for ST.

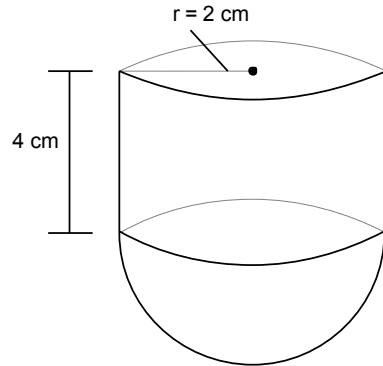
- A. 11
- B. 5
- C. 23
- D. 27



D

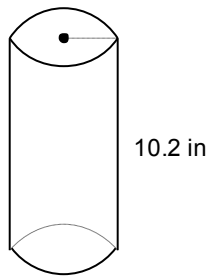


1. The bottom of the cylindrical container shown has the shape of a hemisphere. [G.GMD.3]  
 The total volume of the container is \_\_\_\_\_. Leave your answer in terms of  $\pi$ .



$$\frac{1072}{3}\pi$$

2. Given the volume of a cylinder below is  $392.34 \text{ in}^3$ , find the radius. [G.GMD.3]



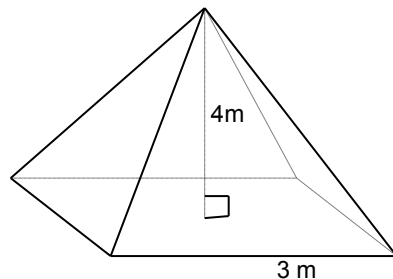
$$r = 3.5 \text{ in}$$

3. Below are two decks of cards, one of which has been moved slightly. Are the volumes of these two decks the same, or different? [G.GMD.1]



Volumes are the same

4. Find the volume of the square pyramid to the nearest cubic meter. [G.GMD.3]



$$V = 12 \text{ m}^3$$

5. Find the length of a  $60^\circ$  arc in the circle with a radius of 5 yards.

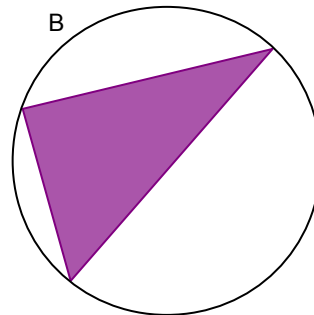
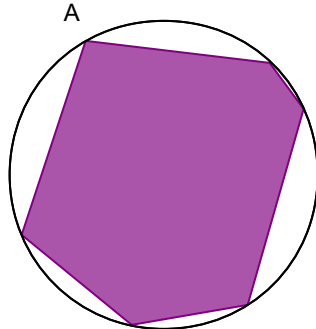
[G.C.5]

$$\frac{5}{3}\pi \text{ or } \approx 5.24$$

6. Which polygon inscribed in a circle has an area closest to the area of the circle?

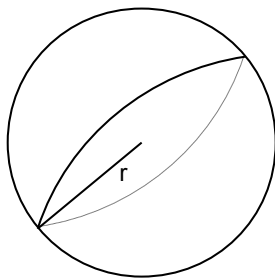
[G.GMD.1]

A



7. Find the volume of the sphere with radius 21 in. Leave answer in terms of pi.

[G.GMD.3]



$$12348\pi$$

8. Find the volume of a cylinder with a base area of  $36\pi \text{ cm}^2$  and height equal to the radius. Give your answer both in terms of  $\pi$  and rounded to the nearest tenth.

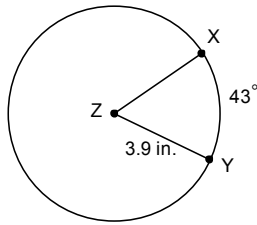
[G.GMD.3]

$$V = 678.6 \text{ cm}^3$$

9. The diameter of a bouncy ball is approximately 2.5 inches. How much rubber would be required to fill the ball?

[G.GMD.3]

It would take approximately 8.2 inches of rubber bands



10. Find the arc length of  $\widehat{XY}$  in the circle above:

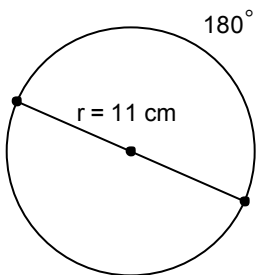
2.93

11. Find the sector area in the circle above that is surrounded  $\widehat{XY}$

5.71

[G.C.5]

12. The radius of a circle is 11 centimeters. What is the area of the sector bounded by an  $180^\circ$  arc?  
[G.GMD.3]



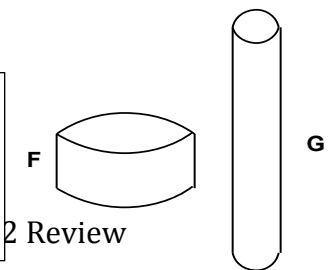
A of Sector = 190.1

13. The volume of a sphere is  $288\pi \text{ in}^3$ . What is the diameter of the sphere? [G.GMD.3]

d = 12 in

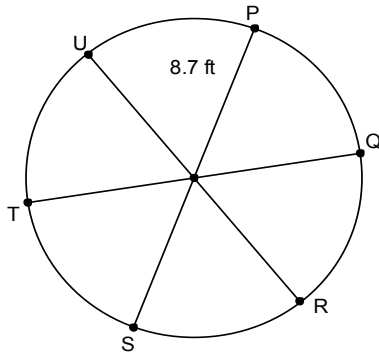
14. The figure below is a scale drawing of two cylinders, F and G. Cylinder F has a radius of 7 in and a height of 3 in. Cylinder G has a radius of 4 in and a height of 10 in. Are the volumes of these cylinders equal? If not, which one has the greater volume?  
[G.GMD.3]

The volumes are not the same, Cylinder G has a bigger volume than Cylinder F



15 – 16: All six sectors of the circle below are congruent and the radius is given.

[G.C.5]



15. Find the arc length for the intercepted arc of each sector.

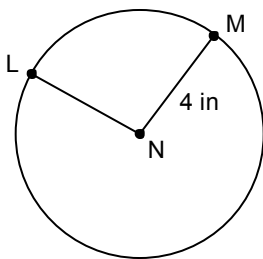
9.11 ft.

16. Find the sector area of each sector.

39.63 ft.<sup>2</sup>

17. Find the degree measure of the central angle  $\angle LNM$ , given the area of the sector =  $2.97 \text{ in}^2$ , and the radius = 4 in. (Use  $\pi \approx 3.14$ )

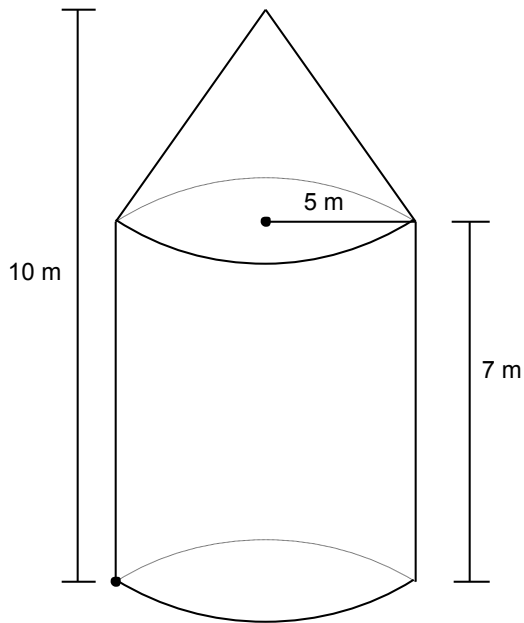
[G.C.5]



21.27°

18. Find the volume of the composite figure. Round to the nearest hundredth.

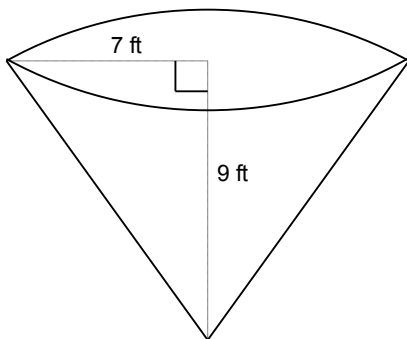
[G.GMD.3]



628.32 m<sup>3</sup>

19. Calculate the volume of the cone shown below. Use  $\pi \approx 3.14$

[G.GMD.3]



461.58 ft<sup>3</sup>

20. A large pizza is cut into 12 congruent slices. The diameter of the pizza is 16 inches. What is the length, to the nearest 0.1 inches, of the outer edge of a slice of pizza? [G.C.5]

4.2 in.

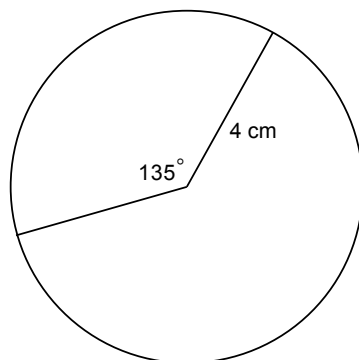


21. Given the volume of the cone is  $56.52 \text{ in}^3$  and the height is 6 in, find the radius. [G.GMD.3]

$$r = 3 \text{ in.}$$

22 – 23: Use the circle to the right.

[G.C.5]



22. Find the arc length of the given sector.

$$9.42$$

23. Find the sector area for the given sector.

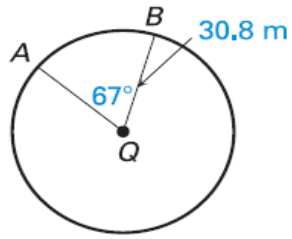
$$18.85 \text{ cm}$$

24. Find the arc length of an arc if the arc measure is 120 and the radius is 16. Put your answer in exact form.

$$\frac{32}{3}\pi$$

25. Find the arc length of AB.

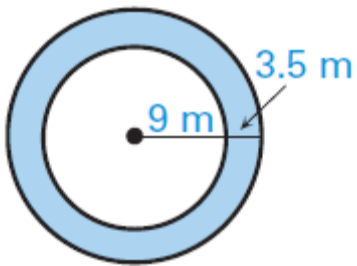
36.02 m



Unit 3 Circles and Volume Pt. 2 Review

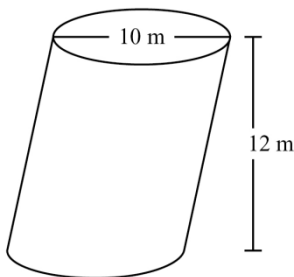
**Solutions**

26. Find the area of the shaded region



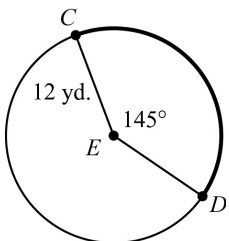
$\approx 159.44$

27. Find the volume of the cylinder.



$300\pi$  or  $\approx 942.5$

28. What is the length of  $\widehat{CD}$ ?



C

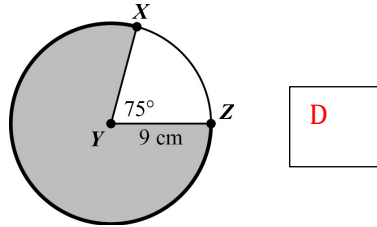
a)  $\frac{29}{72}\pi \text{ yd.}$

b)  $\frac{29}{6}\pi \text{ yd.}$

c)  $\frac{29}{3}\pi \text{ yd.}$

d)  $\frac{29}{2}\pi \text{ yd.}$

29. Circle Y is shown. What is the area of the shaded part of the circle?



a)  $\frac{57}{4}\pi \text{ cm.}^2$

b)  $\frac{135}{8}\pi \text{ cm.}^2$

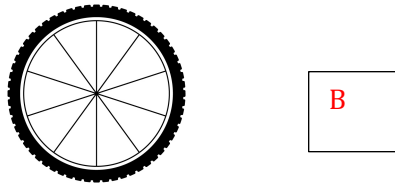
c)  $\frac{405}{8}\pi \text{ cm.}^2$

d)  $\frac{513}{8}\pi \text{ cm.}^2$

Unit 3 Circles and Volume Pt. 2 Review

**Solutions**

30. The spokes of a bicycle wheel form 10 congruent central angles. The diameter of the circle formed by the outer edge of the wheel is 18 inches.



What is the length, to the nearest 0.1 inch, of the outer edge of the wheel between two consecutive spokes?

a) 18. in.

b) 5.7 in.

c) 11.3 in.

d) 25.4 in.

31. A circular pizza with a diameter of 15 inches is cut into 8 equal slices. What is the area of one slice?

a. 5.9 sq. in.

b. 22.1 sq in.

c. 88.4 sq. in.

d. 120 sq. in.





32. Jason constructed two cylinders using solid metal washers. The cylinders have the same height, but one of the cylinders is slanted as shown.

Which statement is true about Jason's cylinders?

- a) The cylinders have different volumes because they have different radii.
- b) The cylinders have different volumes because they have different surface areas.
- c) The cylinders have the same volume because each of the washers has the same height.
- d) The cylinders have the same volume because they have the same cross-sectional area at every plane parallel to the bases and the same height.

D

33. What is the volume of a cylinder with a radius 3 in. and a height of  $9/2$  in.?

A

a)  $\frac{81}{2} \pi \text{ in.}^3$

b)  $\frac{27}{4} \pi \text{ in.}^3$

c)  $\frac{27}{8} \pi \text{ in.}^3$

d)  $\frac{9}{4} \pi \text{ in.}^3$