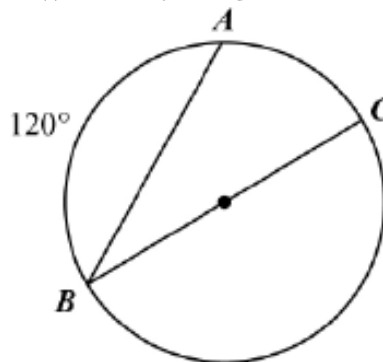


Unit 4 Test: Circles and Volume

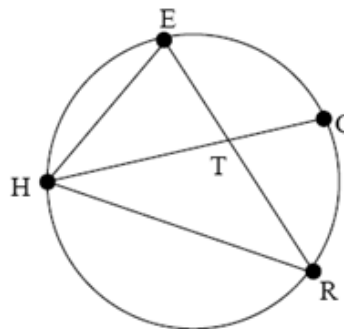
Re-Take Review Handout

Do NOT write on this handout please!

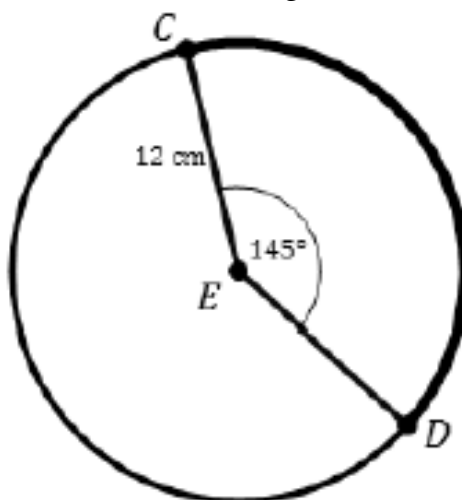
1. In the circle shown, \overline{BC} is the diameter and $m\widehat{AB} = 120^\circ$. What is $m\angle ABC$?



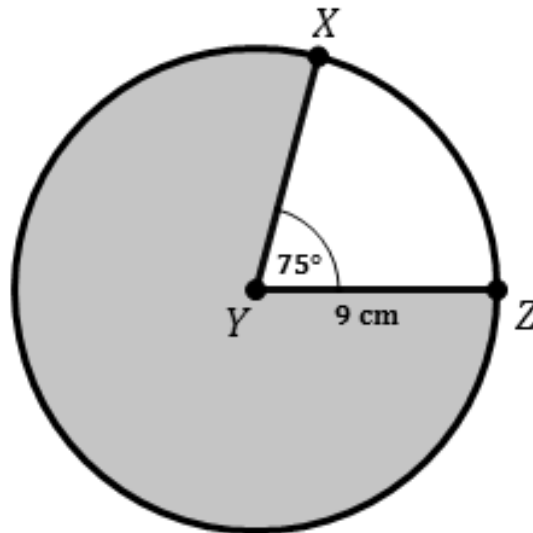
2. The $m\widehat{HE} = 110^\circ$ and $m\angle ETC = 81^\circ$. What is the $m\widehat{CR}$?



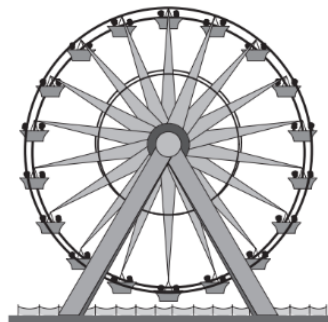
3. Circle with center E is shown. The $m\angle CED = 145^\circ$ and the length of CE is 12 cm. What is the length of arc \widehat{CD} in terms of π ?



4. Circle with center Y is shown. The $m\angle XYZ = 75^\circ$ and the length of YZ is 9 cm. What is the area of the shaded part of the circle in terms of π ?

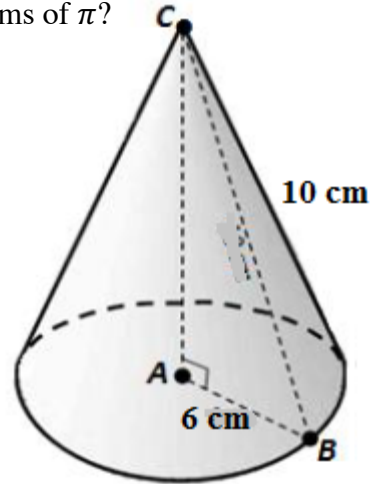


5. The length of each steel arc connecting one passenger car to the next passenger car is approximately 8.7 meters, and the central angle connecting one car to the next is 20 degrees. To the nearest meter, what is the diameter of the Ferris wheel?



6. What is the volume of a cylinder, in terms of π , with a radius of 3 inches and a height of $\frac{9}{2}$ in.?
7. What is the radius of a sphere with volume $288\pi \text{ cm}^3$?

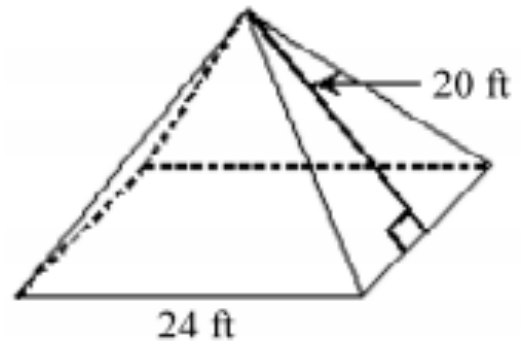
8. The cone shown has a base with a radius of AB . The length of radius AB is 6 cm and the length of slant height BC is 10 cm. What is the volume of the cone in terms of π ?



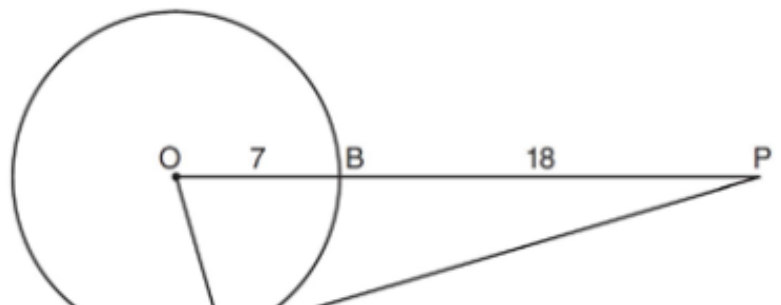
9. Dan is calculating the volume of two cylinders. Cylinder A has a radius of 2 feet and a height of 4 feet. Cylinder B also has a height of 4 feet, but the radius has been doubled. Complete the statement so that it best describes the relationship between the volumes of the two cylinders?

When the radius is doubled, the volume is _____ the original volume.

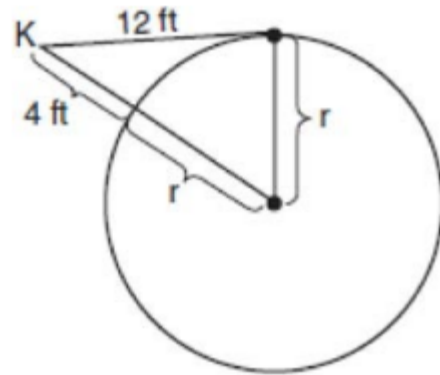
10. Find the volume of the square pyramid shown rounded to the nearest cubic foot.



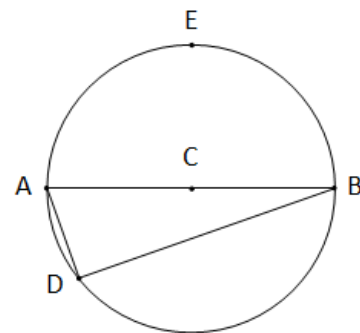
11. In the diagram below AP is tangent to circle O at point A , $OB = 7$, and $BP = 18$. What is the length of AP ?



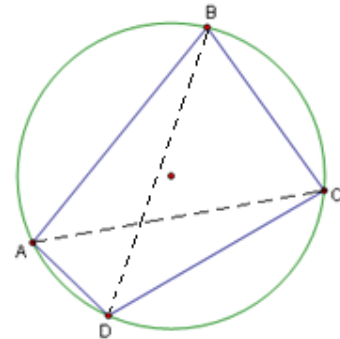
12. Kimi wants to determine the radius of a circular pool without getting wet. She is located at point K, which is 4 feet from the pool and 12 feet from the point of tangency, as shown in the accompanying diagram. What is the radius of the pool?



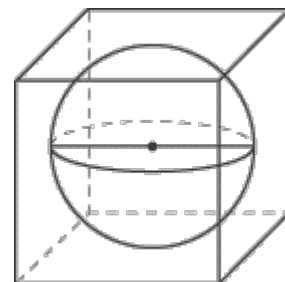
13. In the circle shown below, $\angle ABD = 35^\circ$. What is $m\widehat{DB}$?



14. Quadrilateral ABCD is inscribed in the circle shown below. The measure of \widehat{AB} is 100° and the measure of $m\angle ACD$ is 30° . What is the measure of $\angle BAD$?



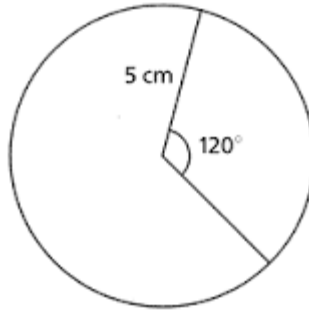
15. A sphere is inscribed in a cube with side lengths of 4 inches. What is the volume of the sphere in terms of π ?



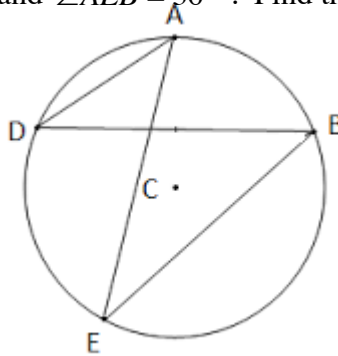
16. Circle P is **dilated** to form circle P'. Write **TRUE** or **FALSE** for each statement.

- 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.

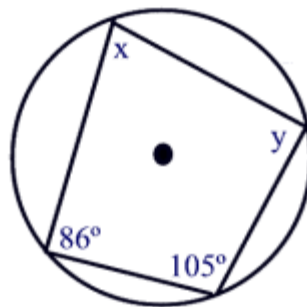
17. Rounded to the nearest whole number, what is the area of the sector below whose central angle is 120° ?



18. In the circle below, $\angle DAE = 25^\circ$ and $\angle AEB = 30^\circ$. Find the measure of $\angle DBE$.



19. Use the inscribed quadrilateral below. Write **TRUE** or **FALSE** for each statement.



- a) $x + y + 86^\circ + 105^\circ = 360^\circ$
- b) $x + 105^\circ = 180^\circ$
- c) $180^\circ - 86^\circ = y$
- d) $x - 180^\circ = 105^\circ$

20. Jason constructed a right cylinder and an oblique cylinder using solid metal washers. The cylinders have the same height. Because of Cavalieri's principle, the cylinders have the same volume. Write **TRUE** or **FALSE** for each statement.

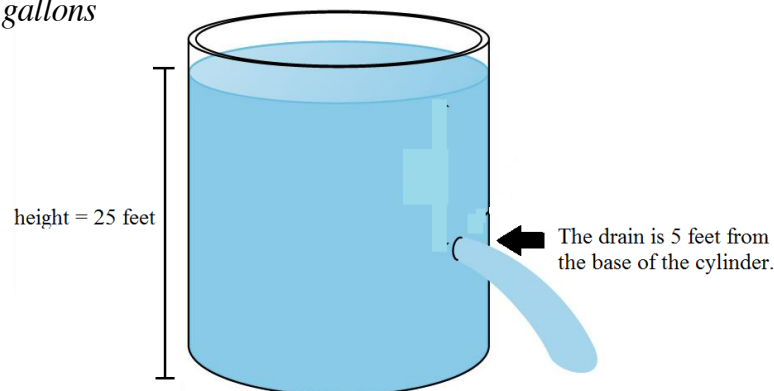


- a) The cylinders have the same volume because they have the same cross-sectional area at every plane parallel to the bases.
- b) The radius of the base of the right cylinder is less than the radius of the base of the oblique cylinder.
- c) The radius of the base of the oblique cylinder is less than the radius of the base of the right cylinder.
- d) The cylinders have different heights.

21. The figure below shows 3 tennis balls stacked tightly in a cylindrical can. The circumference of one tennis ball is 8 inches. Which is a correct expression for the volume of the can in terms of π ?

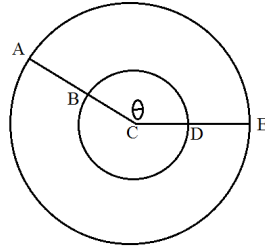


22. A cylindrical tank has a radius of 5 feet. The height of the water in the tank is 25 feet. When the drain plug is pulled, the water will drain at a rate of 30 gallons per minute. The water will stop draining when the water level reaches the height of the drain. Approximately how long will it take for the water to stop draining? $1\text{ft}^3 \approx 7.5\text{gallons}$



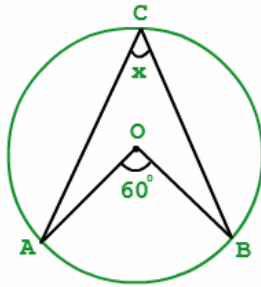
23. The image below shows two circles, both with center C .

- $\overline{BC} = 3$ cm
- $\overline{AB} = 5$ cm
- The length of minor arc $BD = 2\pi$ cm



What is the length of minor arc AE in terms of π ?

24. Use the circle below. Write **TRUE** or **FALSE** for each statement.



- a) $60 = \frac{x}{2}$
- b) $60 = 2x$
- c) $60 = 180 - x$
- d) $60 = 90 + x$

25. In the circle below, $AB = 3$, $AE = 4$, and $AD = 2$. What is the length of AC ?

