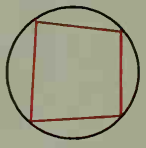
Congruent circles (or **spheres**) are circles (or spheres) that have congruent radii.

Concentric circles are circles that lie in the same plane and have the same center. The rings of the target illustrate concentric circles.

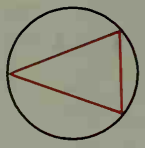
Concentric spheres are spheres that have the same center.

A polygon is **inscribed in a circle** and the circle is **circumscribed about the polygon** when each vertex of the polygon lies on the circle.

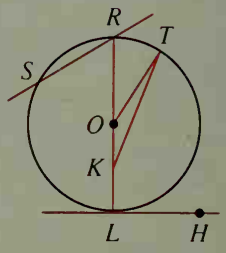


Inscribed polygons

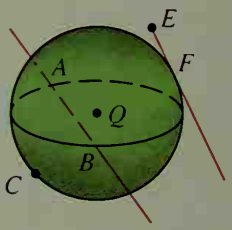
Circumscribed circles



Classroom Exercises



1. Name three radii of $\odot O$.
2. Name a diameter.
3. Consider $\overline{RS}$ and $\overleftrightarrow{RS}$. Which is a chord and which is a secant?
4. Why is $\overline{TK}$ not a chord?
5. Name a tangent to $\odot O$.
6. What name is given to point L?



7. Name a line tangent to sphere Q.
8. Name a secant of the sphere and a chord of the sphere.
9. Name 4 radii. (None are drawn in the diagram.)
10. What is the diameter of a circle with radius 8? 5.2? $4\sqrt{3}$? j?
11. What is the radius of a sphere with diameter 14? 13? 5.6? $6n$?

Written Exercises

A

1. Draw a circle and several parallel chords. What do you think is true of the midpoints of all such chords?
2. Draw a circle with center O and a line $\overleftrightarrow{TS}$ tangent to $\odot O$ at T. Draw $\overline{OT}$, and use a protractor to find $m\angle OTS$.
3. **a.** Draw a right triangle inscribed in a circle.
   b. What do you know about the midpoint of the hypotenuse?
   c. Where is the center of the circle?
   d. If the legs of the right triangle are 6 and 8, find the radius of the circle.