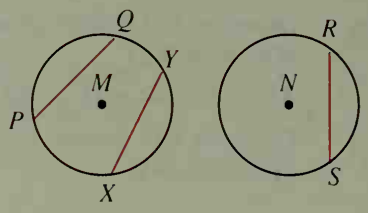
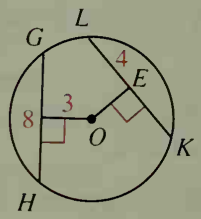
Classroom Exercises

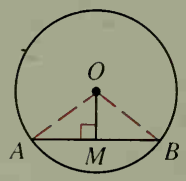
1. If $\overline{PQ} \cong \overline{XY}$, can you conclude that $\overset{\frown}{PQ} \cong \overset{\frown}{XY}$? Why or why not?
2. If $\overline{PQ} \cong \overline{RS}$, can you conclude that $\overset{\frown}{PQ} \cong \overset{\frown}{RS}$? Why or why not?



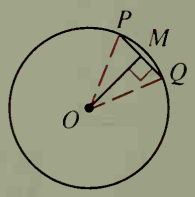
3. Study the diagram at the right and tell what theorem justifies each statement.
   a. $LK = 8$
   b. $OE = 3$
   c. $\overset{\frown}{LK} \cong \overset{\frown}{GH}$



4. $AB = 16$
   $OM = 6$
   radius = ?



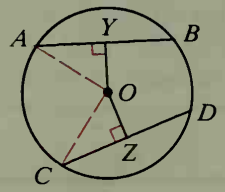
5. $PQ = 10$
   radius = 13
   OM = ?



6. Supply reasons to complete a proof of Theorem 9-6, part (2), for one circle.

   Given: $\odot O$; $\overline{AB} \cong \overline{CD}$; $\overline{OY} \perp \overline{AB}$; $\overline{OZ} \perp \overline{CD}$

   Prove: $OY = OZ$



Proof:

Statements	Reasons
1. Draw radii $\overline{OA}$ and $\overline{OC}$.	1. ?
2. $\overline{OY} \perp \overline{AB}$; $\overline{OZ} \perp \overline{CD}$	2. ?
3. $\overline{AB} \cong \overline{CD}$, or $AB = CD$	3. ?
4. $\frac{1}{2}AB = \frac{1}{2}CD$	4. ?
5. $AY = \frac{1}{2}AB$; $CZ = \frac{1}{2}CD$	5. ?
6. $AY = CZ$, or $\overline{AY} \cong \overline{CZ}$	6. ?
7. $\overline{OA} \cong \overline{OC}$	7. ?
8. rt. $\triangle OYA \cong$ rt. $\triangle OZC$	8. ?
9. $\overline{OY} \cong \overline{OZ}$, or $OY = OZ$	9. ?

7. Suppose that in Theorem 9-6, the words "circle" and "circles" are replaced by "sphere" and "spheres." Is the resulting statement true?