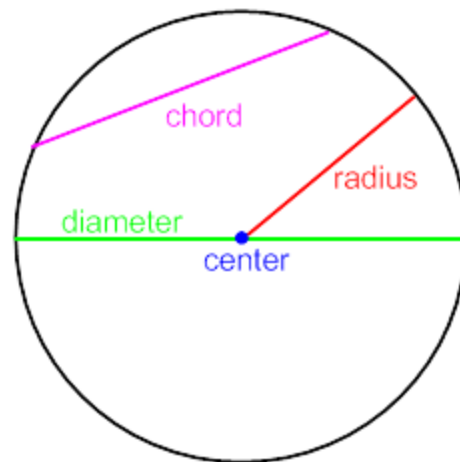
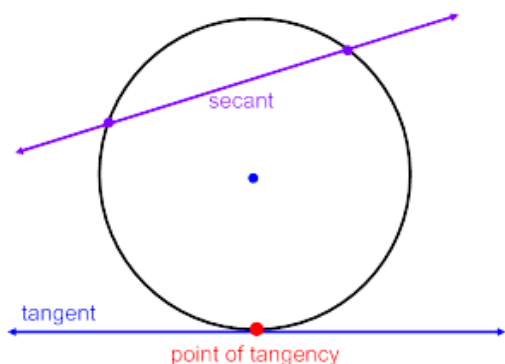


A **circle** is the set of all points in a plane that are equidistant from a given point called the **center** of the circle. A circle with center P is called "circle P" and can be written $\odot P$. A segment whose endpoints are the center and any point on the circle is a **radius**. A **chord** is a segment whose endpoints are on a circle. A **diameter** is a chord that contains the center of the circle.

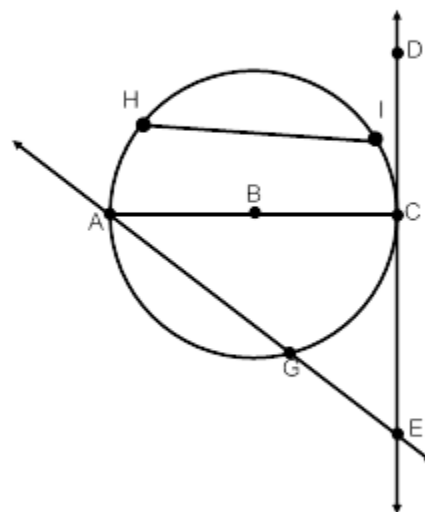


A **secant** is a line that intersects a circle in two points. A **tangent** is a line in the plane of a circle that intersects the circle in exactly one point, the **point of tangency**.

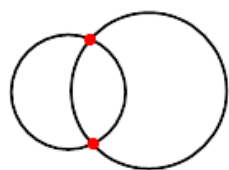


Tell whether the line, ray, or segment is best described as a **radius**, **chord**, **diameter**, **secant**, or **tangent** of $\odot B$.

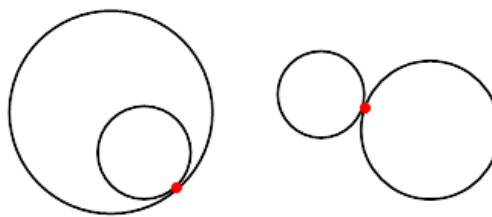
- | | | |
|------------------------------|--------------------|------------------------------|
| 1. \overline{AC} | 2. \overline{AB} | 3. \overleftrightarrow{AG} |
| 4. \overleftrightarrow{DE} | 5. \overline{HI} | 6. \overline{CE} |



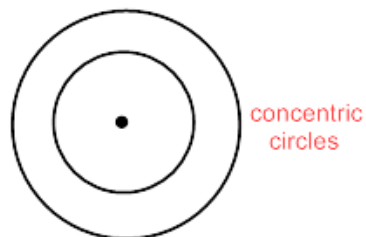
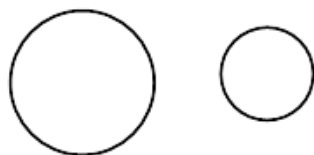
Coplanar circles can intersect in two points, one point, or no point.



2 points



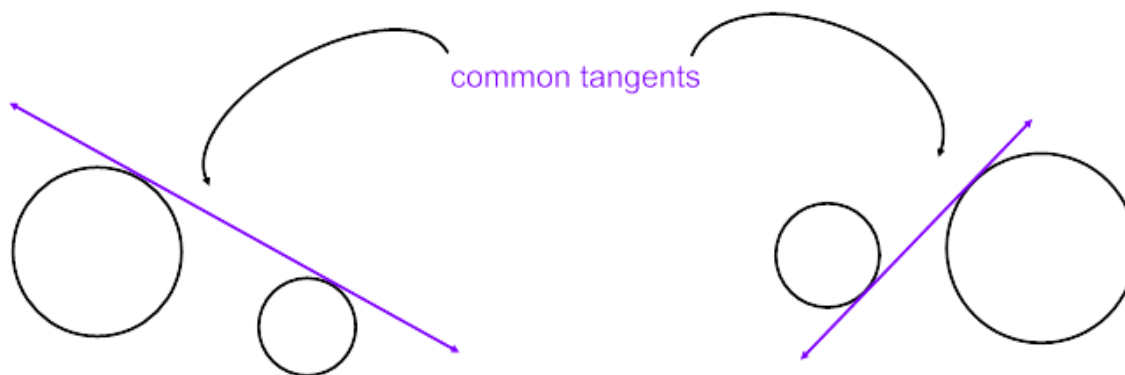
1 point



concentric
circles

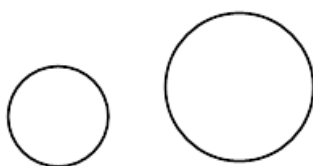
No points

Common Tangents: A line, ray or segment that is tangent to two coplanar circles is called a common tangent.



Tell how many common tangents the circles have and draw them.

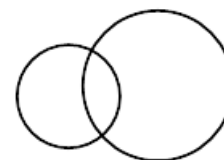
a.



b.

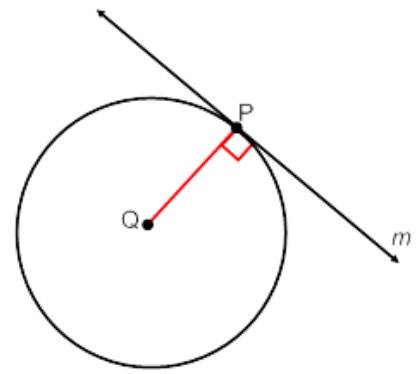


c.



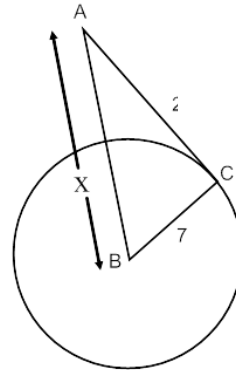
Tangent lines are \perp to the diameter of a circle at the point of tangency.

Line m is tangent to $\odot Q$ if and only if $m \perp \overline{QP}$.



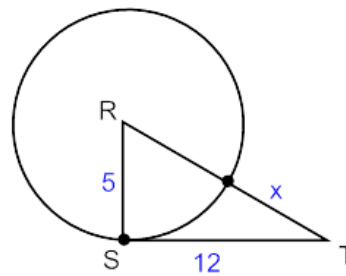
\overline{AC} is tangent to $\odot B$.

Find AB.



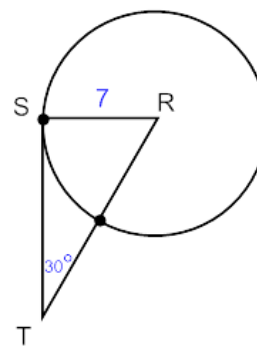
\overline{ST} is tangent to $\odot R$.

Find the value of x .



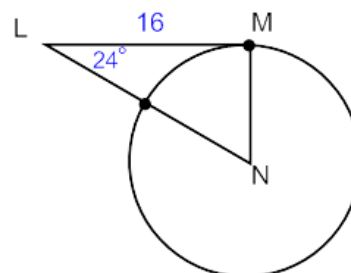
\overline{ST} is tangent to $\odot R$.

Find ST.

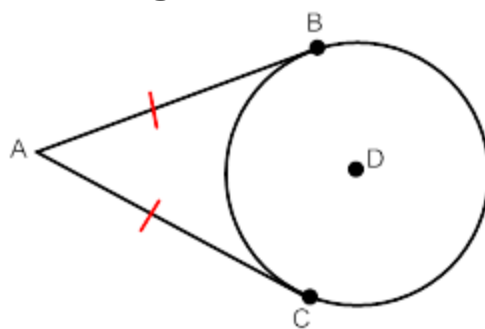


\overline{LM} is tangent to $\odot N$.

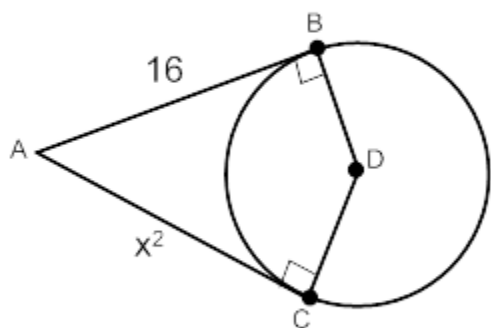
Find the radius of $\odot N$.



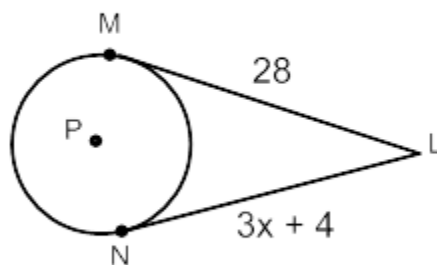
Tangent segments from a common external point are congruent.



Find the value of x .



\overline{ML} and \overline{NL} are tangent to $\odot P$.



Find the perimeter of ABCD

