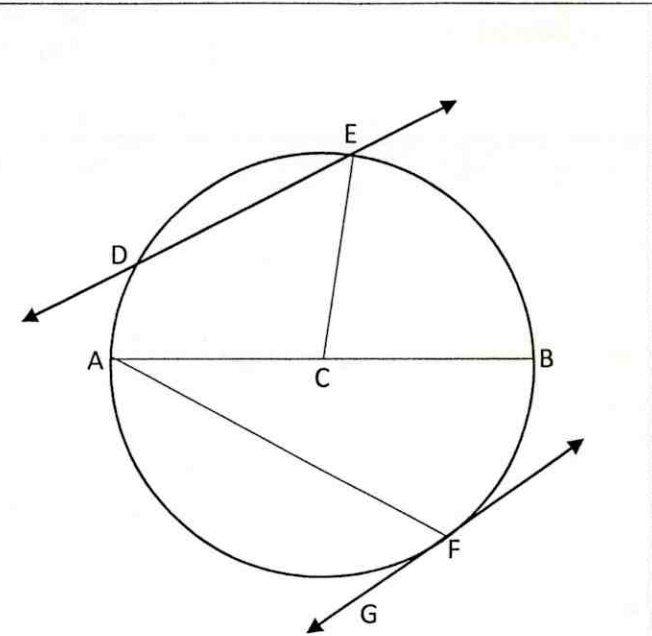


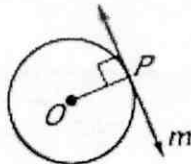
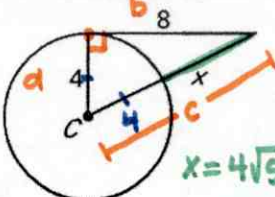
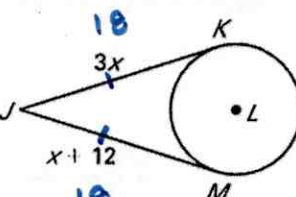
Use Properties of Tangents

Vocabulary	Definition	Example
CIRCLE	A circle is the set of all points in a plane that are equidistant from a given point.	
CENTER	The center of a circle is the point from which all points of the circle are equidistant.	
RADIUS	A segment from the center of a circle to any point on the circle is a radius.	
CHORD	A chord is a <u>segment</u> whose <u>endpoints</u> are on a circle.	
DIAMETER	A diameter is a <u>chord</u> that contains the center of the circle. <u>Longest chord of circle</u>	
SECANT	A secant is a <u>line</u> that <u>intersects</u> a circle in <u>two places</u> .	
TANGENT	A tangent is a <u>line</u> in the plane of a circle that intersects the circle in <u>exactly one point</u> . The point of intersection is called the <u>point of tangency</u> .	

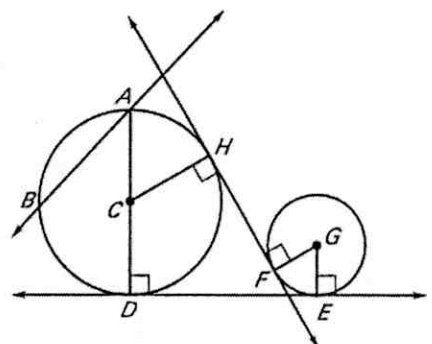


Tell whether the line, ray or segment is best described as a radius, chord, diameter, secant, or tangent of $\odot C$.

- | | | |
|----------------------------|---------------------------|----------------------------|
| Radius | Diameter | Chord |
| \overline{CB} | \overline{AB} | \overline{DE} |
| \overline{CE} | | \overline{AF} |
| \overline{CA} | | \overline{AB} (diameter) |
| Tangent | Secant | |
| \overleftrightarrow{GF} | \overleftrightarrow{DE} | |
| F is the point of tangency | | |

<p>THEOREM 10.1 INTERSECTION of a TANGENT and a RADIUS</p>	<p>In a plane, a line is tangent to a circle if and only if the line is <u>perpendicular</u> to a radius of the circle at its endpoint on the circle. (point of tangency) Radius \perp tangent line</p>	 <p>Find the value of x.</p>  <p>$c^2 = 4^2 + 8^2$ $c^2 = 16 + 64$ $\sqrt{c^2} = \sqrt{80} = 4\sqrt{5}$ $x = 4\sqrt{5} - 4$ $x = 4.9$</p> <p>$\overline{OP} \perp$ to line m at P</p>
<p>THEOREM 10.11 INTERSECTION of 2 TANGENTS</p>	<p>Tangents segments from a common external point are <u>congruent</u>.</p>	 <p>Find the value of x.</p> <p>$\overline{JK} \cong \overline{JM}$ $3x = x + 12$ $2x = 12$ $x = 6$</p> <p>$\overline{RS} \cong \overline{TS}$</p>

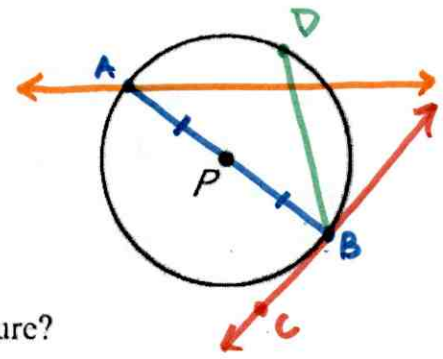
Match the notation with the term that best describes it.



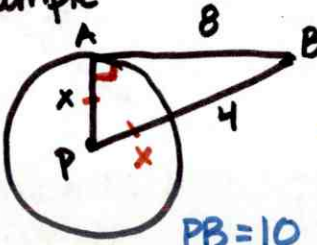
- | | |
|----------------------|--|
| E 1. D | A. Center = C |
| G 2. \overline{FH} | B. Chord = \overline{AB} |
| D 3. \overline{CD} | C. Diameter = \overline{AD} |
| B 4. \overline{AB} | D. Radius = \overline{CD} |
| A 5. C | E. Point of tangency = D |
| C 6. \overline{AD} | F. Common external tangent = \overleftrightarrow{DE} |
| H 7. \overline{AB} | G. Common internal tangent = \overleftrightarrow{FH} |
| F 8. \overline{DE} | H. Secant = \overleftrightarrow{AB} |

Use $\odot P$ to draw the part of the circle described or answer the question.

- Draw a diameter \overline{AB} .
- Draw tangent line \overleftrightarrow{CB} .
- Draw chord \overline{DB} .
- Draw a secant through point A.
- What is the name of a radius in the figure?
 $\overline{AP}, \overline{BP}$



Example



$(PB)^2 = (AP)^2 + (AB)^2$
 $(x+4)^2 = x^2 + 8^2$
 $x^2 + 8x + 16 = x^2 + 64$
 $-16 \quad -16$
 $8x = 48$
 $x = 6$

	x	4
x	x^2	$4x$
4	$4x$	16