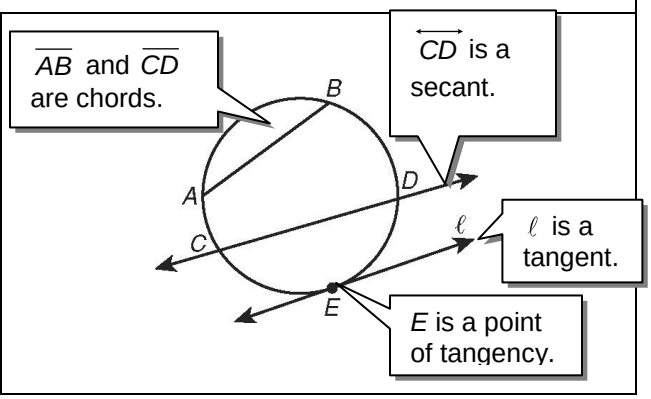
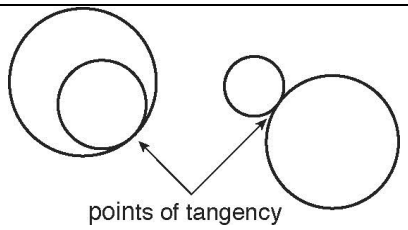
Name _____ Date _____ Class_____

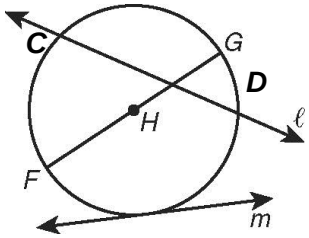
Geometry Notes Section 12-1

Lines That Intersect Circles

Lines and Segments That Intersect Circles	
• A **chord** is a segment whose endpoints lie on a circle. • A **secant** is a line that intersects a circle at two points. • A **tangent** is a line in the same plane as a circle that intersects the circle at exactly one point, called the **point of tangency.** • Radii and diameters also intersect circles.	

Tangent Circles	
Two coplanar circles that intersect at exactly one point are called **tangent circles**.	

1. Identify each line or segment that intersects circle *H*.



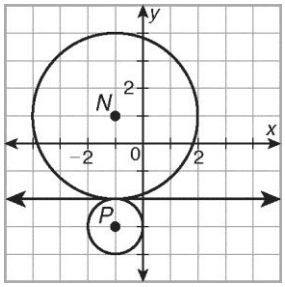
$\overline{HG}$ $\overline{FG}$

$\overline{CD}$ line ℓ

line m

Identify the point of tangency and write the equation of the line at that point.

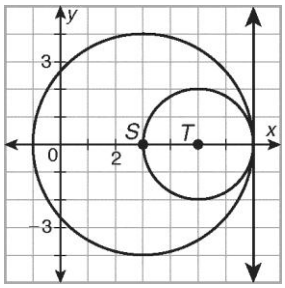
2.



point of tangency _____

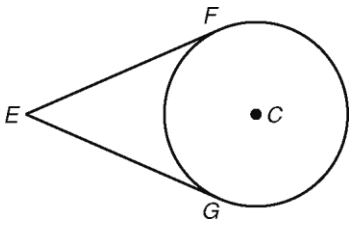
equation of tangent line_____

3.

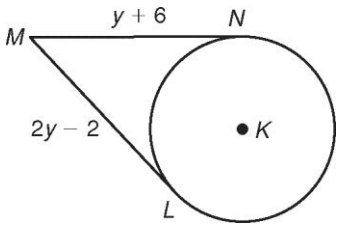


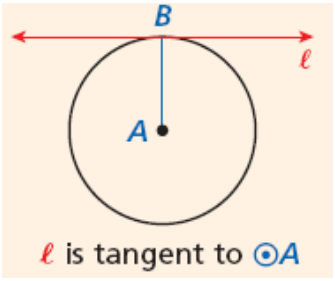
point of tangency _____

equation of tangent line_____

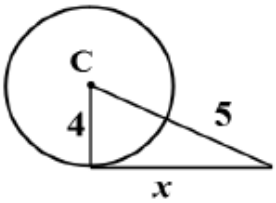
Theorem	Hypothesis	Conclusion
If two segments are tangent to a circle from the same external point, then the segments are congruent.	 $\overline{EF}$ and $\overline{EG}$ are tangent to circle C.	$\overline{EF} \cong \overline{EG}$

4. The segments in the figure are tangent to circle K. Find LM.

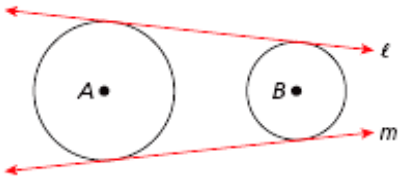


Theorem	Hypothesis	Conclusion
If a line is tangent to a circle, then it is perpendicular to the radius at the point of tangency.		$\ell \perp \overline{AB}$

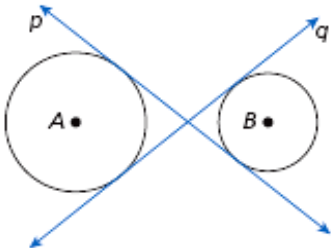
5. Find the length of x in simplest radical form.



A ***common tangent*** is a line that is tangent to two circles.



Lines ℓ and m are common external tangents to circle A and circle B.



Lines p and q are common internal tangents to circle A and circle B.