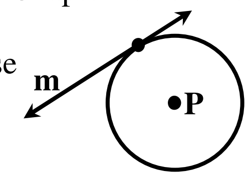
Geometry Note-Taking Guide **Name:_________________________**

Section 9.3 – Tangents and Secant Properties **Note:** Chapter structured differently from book.

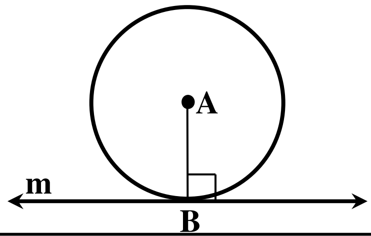
In the diagram, line m is called a ________________ because it intersects $\odot P$ at exactly ___ point.



Tangent and Radius Theorem

If a line is tangent to a circle, then it is perpendicular to its radius.

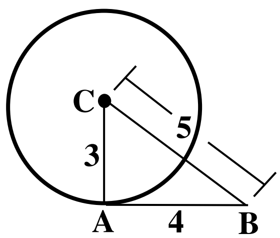
Line m is tangent to $\odot A \leftrightarrow m \perp \overline{AB}$



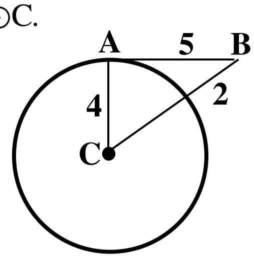
Ex 1:

Determine whether $\overline{AB}$ is tangent to $\odot C$.

a)

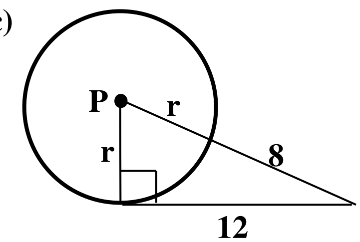


b)



Find the value of the variable.

c)

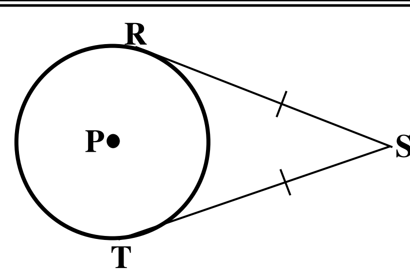


r = ________

Tangent Segments Theorem

Tangent segments from a common external point are congruent.

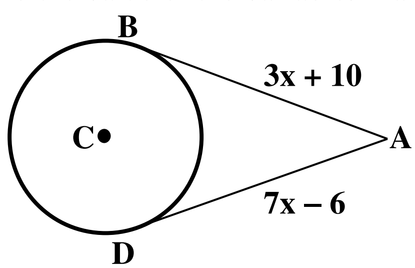
If $\overline{SR}$ and $\overline{ST}$ are tangent segments, then $\overline{SR} \cong \overline{ST}$.



Ex 2:

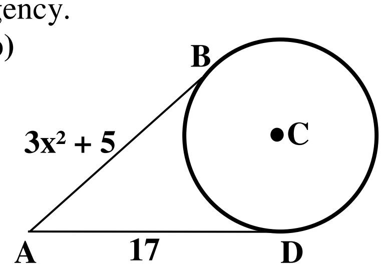
Find the value of the variable. B and D and points of tangency.

a)



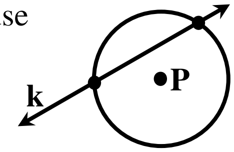
x = ________

b)

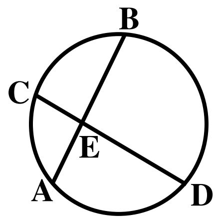


x = ________

In the diagram, line k is called a ________________ because it intersects $\odot P$ the circle at ___ points.

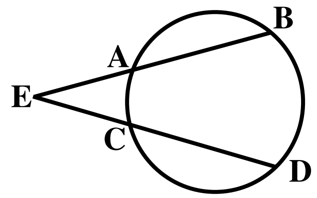


Intersecting Chords Theorem



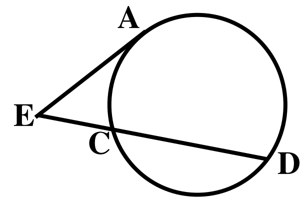
$EA \cdot EB = EC \cdot ED$

Secant Segment Lengths Theorem



$EA \cdot EB = EC \cdot ED$

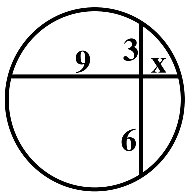
Tangent and Secant Segment Lengths Theorem



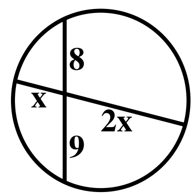
$(EA)^2 = EC \cdot ED$

Ex 3:
Find the value of x.

a)

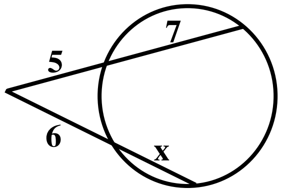


b)

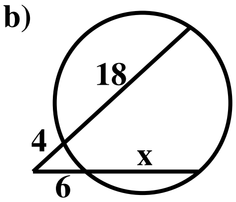


Ex 4:
Find the value of x.

a)

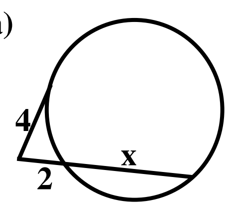


b)



Ex 5:
Find the value of x.

a)



b)