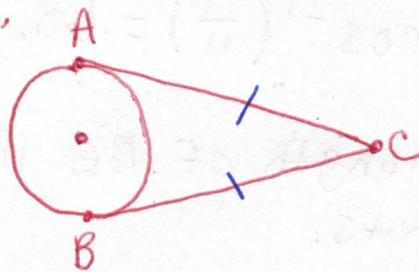## Lesson Vocabulary

Tangent Line - A line perpendicular ($\perp$) to the radius at the point of Tangency.

Point of Tangency - The point where a circle and a tangent intersect.

- t is the tangent line
- r is the radius

Theorem - Two segments tangent to a circle from a point outside the circle are congruent.
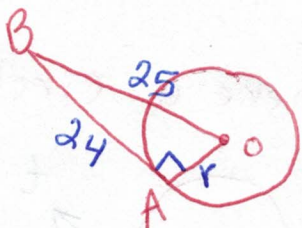
C is the point outside the circle

So, $CB \cong CA$

⭐ A circle is named by the center

ex.) find the radius. $\overline{AB}$ is tangent to circle O. AB = 24 and OB = 25
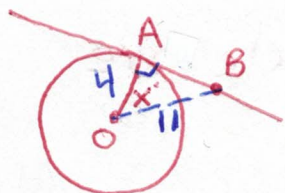
Since AB is the tangent,
∠A is 90°

$r^2 + 24^2 = 25^2$

$r^2 + 576 = 625$

$r^2 = 49$

$r = 7$

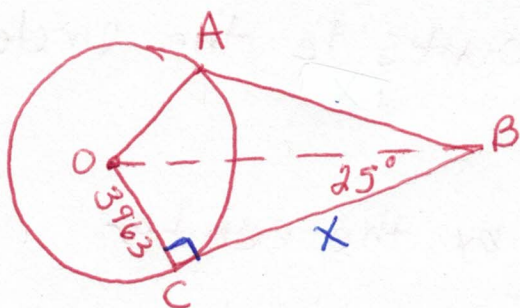ex.) find the m∠X. OA = 4 and OB = 11.

* create a right △, Label the right ∠

$\cos^{-1}\left(\frac{4}{11}\right) = 68.7°$

ex.) what is the length of $\overline{AB}$ if $\overline{AB}$ and $\overline{BC}$ are tangents.

$X \cdot \tan 25° = \frac{3963}{X}$

$\frac{X(\tan 25°)}{\tan 25} = \frac{3963}{\tan 25}$

$X = 8,499$

$AB = 8,499$

* The two △'s are the same.
AB = BC, they are tangents