

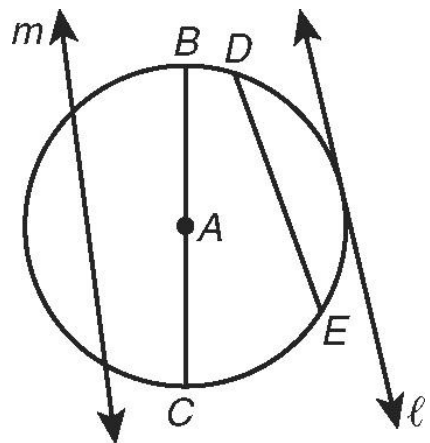
12.1 Lines that Intersect Circles

12.1.a Learning Target: Identify tangents, secants, and chords.
 12.1.b Learning Target: Use properties of tangents to solve problems.

Part 1: Lines and Segments that Intersect Circles (12.1.a)

What do you think the name of this circle is? OA

Match the letter of the part of the figure to the names.

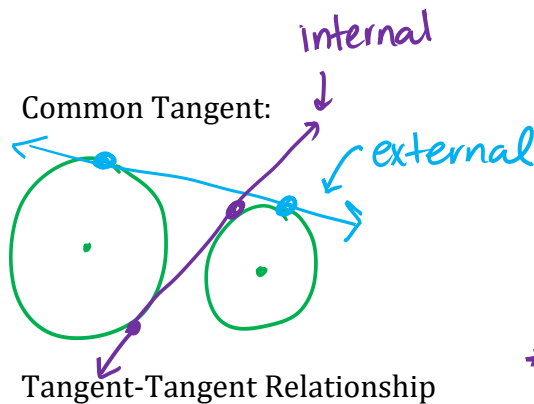
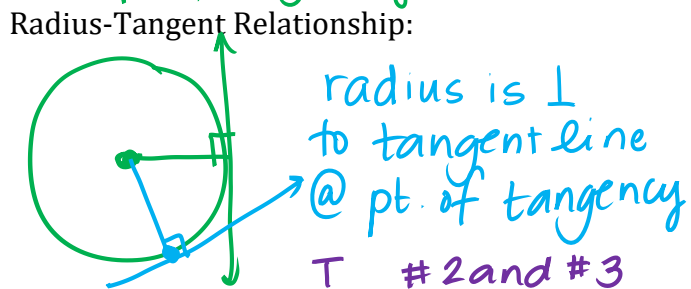
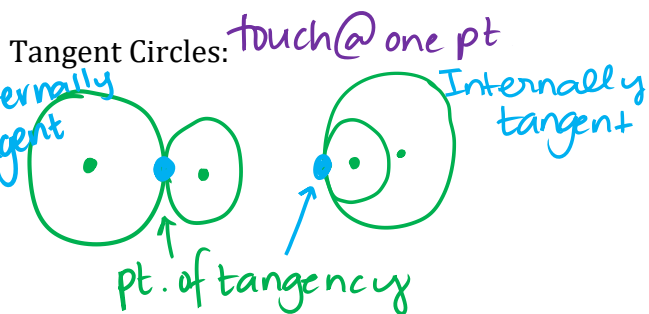


1. Chord D, E
a segment whose endpoints are on the O
2. Tangent B
a line that intersects the O @ 1 pt.
3. Radius A
4. Secant C
a line that intersects the O @ 2 pts.
5. Diameter D

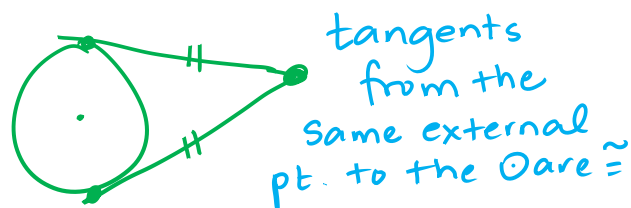
- A. \overline{AB}
 B. l
 C. m
 D. \overline{BC}
 E. \overline{DE}

**Is a chord a diameter? No. Is a diameter a chord? Yes.*

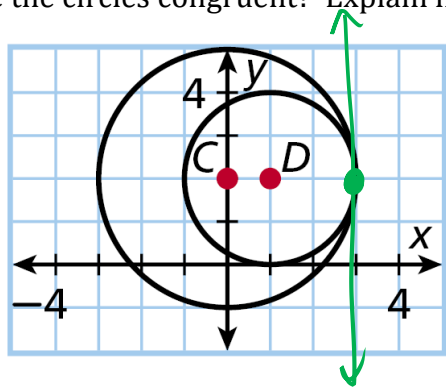
Part 3: Identifying Tangents of Circles (12.1.b)



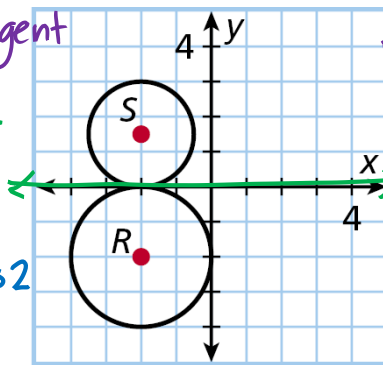
** Try #1*



1. Identify whether the circles are internally or externally tangent. Write the equation of the tangent line. Are the circles congruent? Explain how you know.

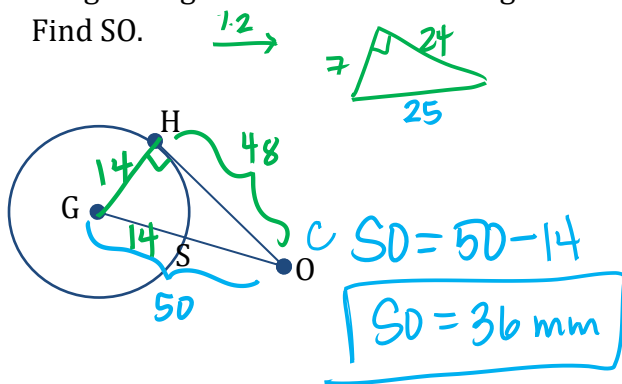


internally tangent
equation: $x=3$
not \cong , b/c
radius of OC
is 3 and OD is 2

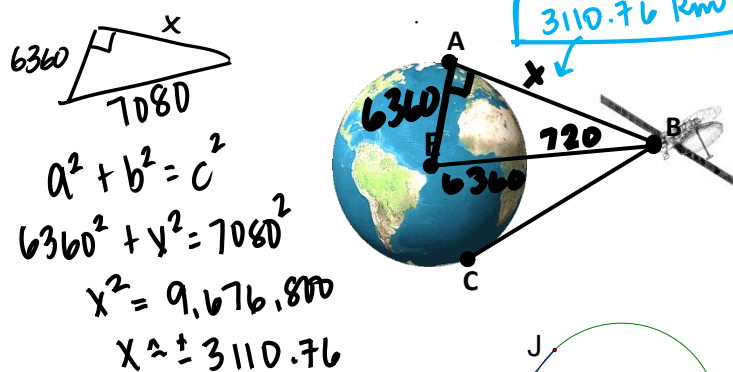


externally tangent
equation: $y=0$
not \cong , b/c
radius of OS
is 1 and OR
is 2

2. The radius of circle G is 14 mm. Tangent segment OH is 48 mm long. Find SO.



3. A satellite is 720 kilometers above Earth, which has a radius of 6360 kilometers. The region of Earth that is visible from the satellite between the tangent line segments lies between BA and BC. What is BA?



4. JO and OB are tangent segments to circle P. Find JO.

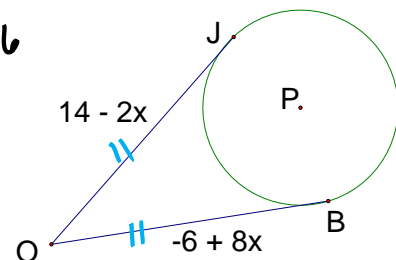
$$14 - 2x = -6 + 8x$$

$$-10x = -20$$

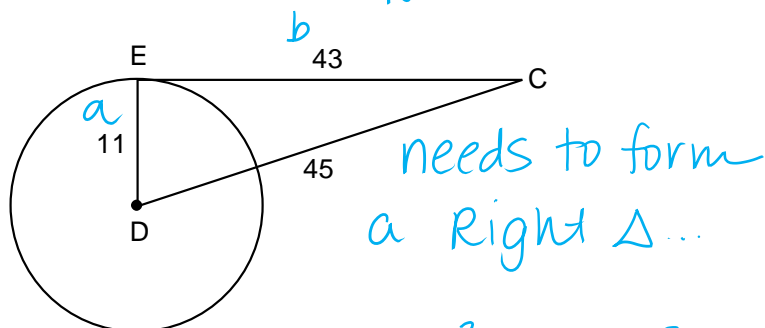
$$x = 2$$

$$JO = 14 - 2(2)$$

$$JO = 10$$



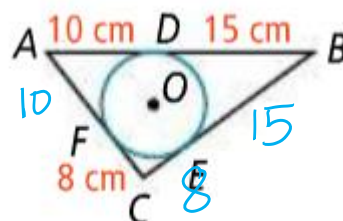
4. Is \overline{CE} tangent to circle D? Explain.



$$11^2 + 43^2 \neq 45^2$$

$$\sqrt{11^2 + 43^2} \approx 44. \dots$$

5. Circle O is inscribed in $\triangle ABC$. Find the perimeter of $\triangle ABC$.



$$P = 2(10) + 2(8) + 2(15)$$

$$= 20 + 16 + 30$$

$$P = 66 \text{ cm}$$