

Geometry Regents Lomac 2015-2016	Date <u>5/17</u>	due <u>5/18</u>	Circles: Tangents and Radii 10.8R
Name _____ Per _____			
LO: I can solve problems involving tangents and radii.			

DO NOW On the back of this packet

(1) **Circles: chord and diameter relationship**



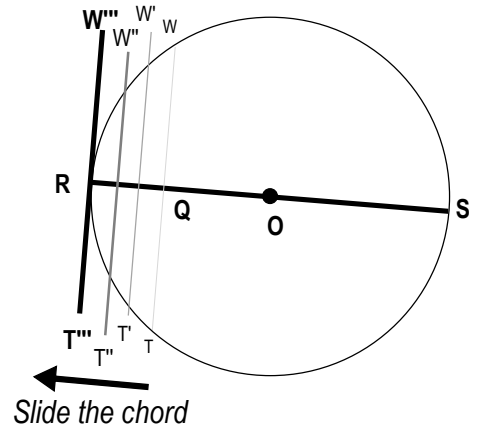
Use the website link for 10.8 (see below or use the QR code at right) to investigate the relationship between tangents and radii.

<http://tube.geogebra.org/m/FnwM8zdD?doneurl=%2Fsearch%2Fperform%2Fsearch%2Ftangent%2Bradius>

Let's use what we learned in 8.8 about chords and diameters to see what happens when we translate the chord to the edge of the circle.

(a) Determine whether each segment is part of a secant or tangent. Circle your choice.

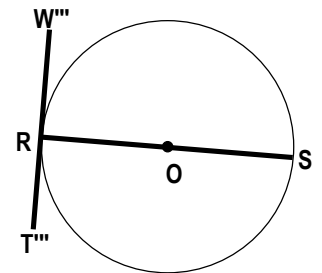
- | | | |
|-----------------------|---------------|----------------|
| \overline{WT} | <i>secant</i> | <i>tangent</i> |
| $\overline{W'T'}$ | <i>secant</i> | <i>tangent</i> |
| $\overline{W''T''}$ | <i>secant</i> | <i>tangent</i> |
| $\overline{W'''T'''}$ | <i>secant</i> | <i>tangent</i> |



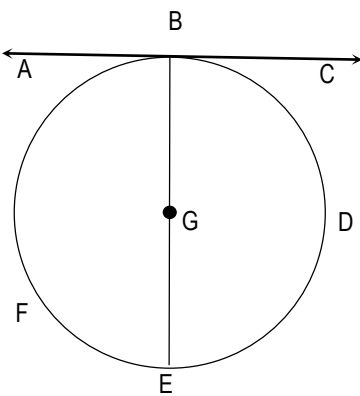
(b) Determine whether each statement is true or false. Circle your choice.

- | | | |
|---|-------------|--------------|
| $\overline{WT} \perp \overline{RS}$ | <i>true</i> | <i>false</i> |
| $\overline{W'T'} \perp \overline{RS}$ | <i>true</i> | <i>false</i> |
| $\overline{W''T''} \perp \overline{RS}$ | <i>true</i> | <i>false</i> |
| $\overline{W'''T'''} \perp \overline{RS}$ | <i>true</i> | <i>false</i> |

(c) The **TANGENT RADIUS THEOREM** states that when a radius (\overline{OR}) intersects a tangent line ($\overline{W'''T'''}$) at the point of tangency, the radius and tangent are _____ (which means they form _____ angles.) Mark the diagram with this information.



- (2) Here is a way to justify the relationship:
For the diagram below, label each arc and angle with its measure. Justify your answer.



\overline{AC} is a _____ because _____

$m\widehat{BFE}$ is _____ $^\circ$ because _____

$m\widehat{BDE}$ is _____ $^\circ$ because _____

$m\angle ABE$ is _____ $^\circ$ because _____

$m\angle CBE$ is _____ $^\circ$ because _____

(3)

230 Line segment AB is tangent to circle O at A . Which type of triangle is always formed when points A , B , and O are connected?

- 1 right
- 2 obtuse
- 3 scalene
- 4 isosceles

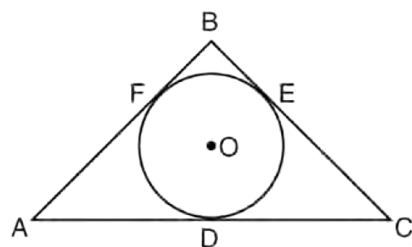
(4)

231 Tangents \overline{PA} and \overline{PB} are drawn to circle O from an external point, P , and radii \overline{OA} and \overline{OB} are drawn. If $m\angle APB = 40$, what is the measure of $\angle AOB$?

- 1 140°
- 2 100°
- 3 70°
- 4 50°

□ (5)

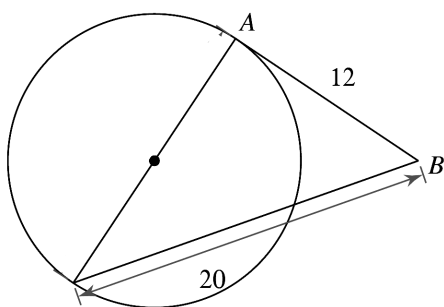
250 In the diagram below, \overline{AB} , \overline{BC} , and \overline{AC} are tangents to circle O at points F , E , and D , respectively, $AF = 6$, $CD = 5$, and $BE = 4$.



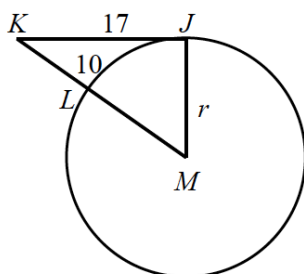
What is the perimeter of $\triangle ABC$?

- 1 15
- 2 25
- 3 30
- 4 60

□ (6) Find the measure of the radius of the circle.



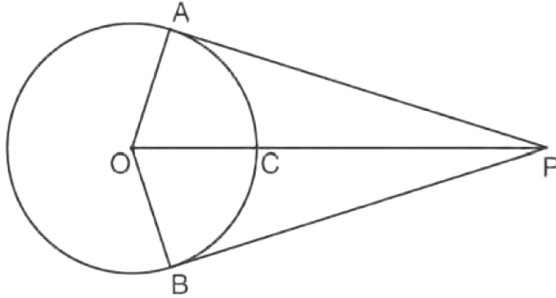
□ (7) \overline{KJ} is tangent to $\odot M$ at J (not drawn to scale). Find the length of the radius r , to the nearest tenth.



- [A] 18.9 [B] 9.4 [C] 10.8 [D] 19.7

□ (8)

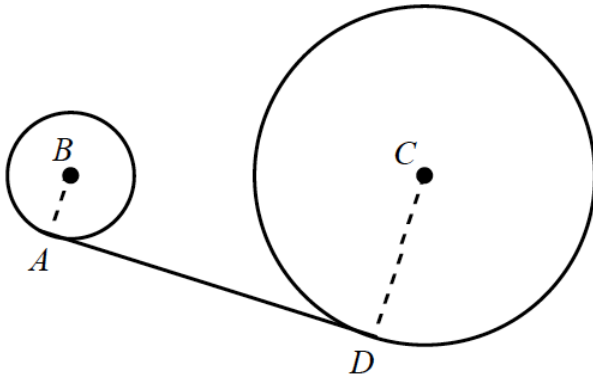
374 In the diagram below, \overline{PA} and \overline{PB} are tangent to circle O , \overline{OA} and \overline{OB} are radii, and \overline{OP} intersects the circle at C . Prove: $\angle AOP \cong \angle BOP$



□ (9)

\overline{AD} is tangent to both circles in the figure (not drawn to scale). If $BA = 9$, $AD = 23$, and $CD = 17$, find the length of \overline{BC} to the nearest tenth.

[A] 32.5 [B] 18.8 [C] 24.7 [D] 24.4



(10) Exit Ticket

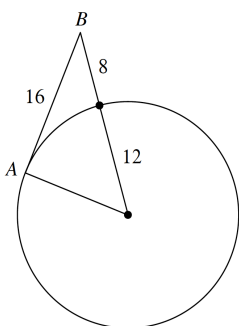
calculator

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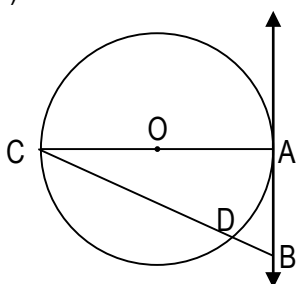
(11) Homework

calculator

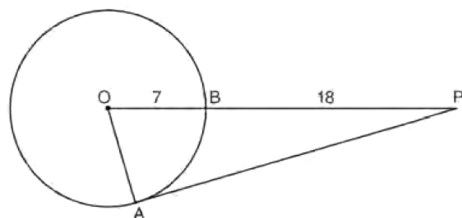
(1) Find the measure of the radius



(2) Find the radius measure given: $m\widehat{CB} = 10$, $m\widehat{AB} = 6$



(3) 233 In the diagram below of $\triangle PAO$, \overline{AP} is tangent to circle O at point A , $OB = 7$, and $BP = 18$.

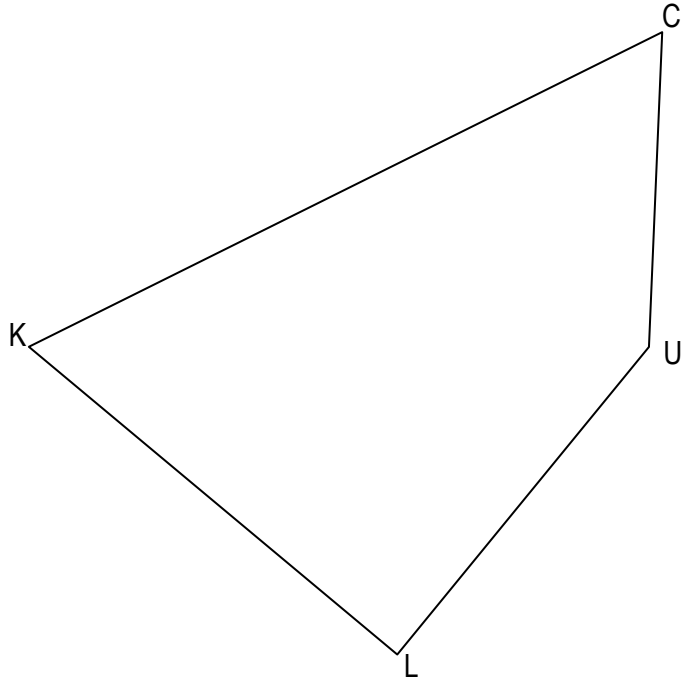
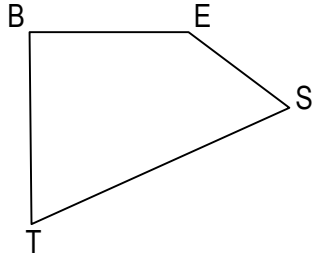


What is the length of \overline{AP} ?

- 1 10
- 2 12
- 3 17
- 4 24

(11) Homework
calculator

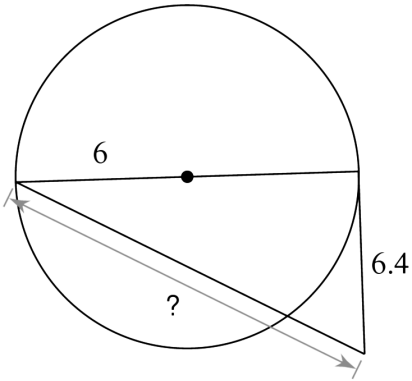
(4) Review: Describe and sketch each step of a composition of transformations that will map BEST to LUCK.



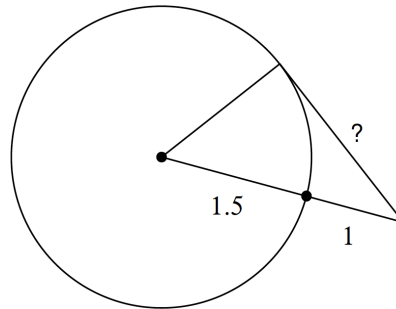
The LO (Learning Outcomes) are written below your name on the front of this packet. Demonstrate your achievement of these outcomes by doing the following:

- (1) Label the side or angle with the question mark "x" and find the measure of x.

(a)

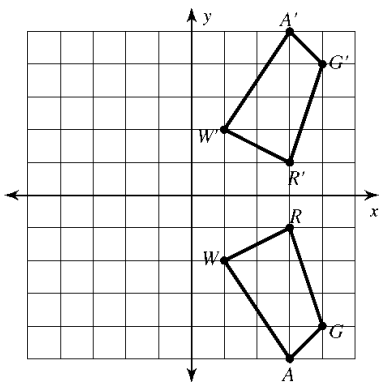


(b)

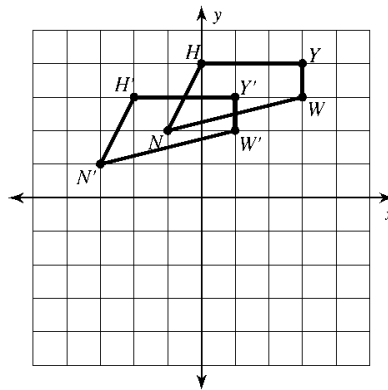


(1) Write a transformation function that will map each preimage to its image.

(a)



(b)



(c)

