

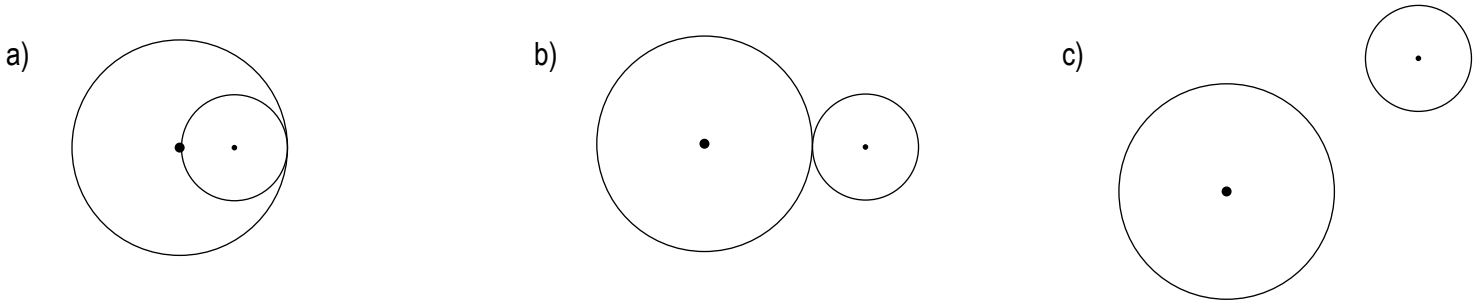
SLO: I can use what I know to answer questions about common tangents and the relationship between tangents and diameters (or radii). Problems worthy of attack prove their worth by fighting back. —Piet Hein THE ROAD TO WISDOM? Well, it's plain and simple to express.

Err and err and err again, but less and less and less. — Piet Hein.

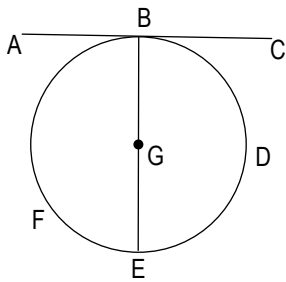
VOCABULARY (have your vocabulary sheet out EVERY day)

(1) DO: Define **common tangent** on your vocabulary page and sketch a diagram. Use the textbook.

(2) DO: For each pair of circles below, draw as many common tangents as possible. Be prepared to defend your answer.



(3) DO: For the diagram below, label each arc and angle with its measure. Justify your answer.



Line AC is a _____ because _____

 Arc BFE is _____° because _____
 Arc BDE is _____° because _____
 Angle ABE is _____° because _____

 Angle CBE is _____° because _____

(4) Use **ALL** relationships we have learned so far to solve the regents problems below. Find the variable or the indicated segment measure. *** Highlighting segments can be helpful.

- 1) 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°

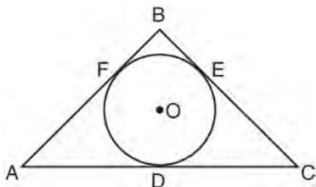
- 2) 230 Line segment AB is tangent to circle O at A . Which type of triangle is always formed when points A , B , and O are connected?
- 1 right
 - 2 obtuse
 - 3 scalene
 - 4 isosceles

SLO: I can use what I know to answer questions about common tangents and the relationship between tangents and diameters (or radii). Problems worthy of attack prove their worth by fighting back. —Piet Hein THE ROAD TO WISDOM? Well, it's plain and simple to express.

Err and err and err again, but less and less and less. — Piet Hein.

3)

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 $BE = 4$.

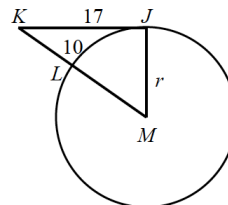


What is the perimeter of $\triangle ABC$?

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

4)

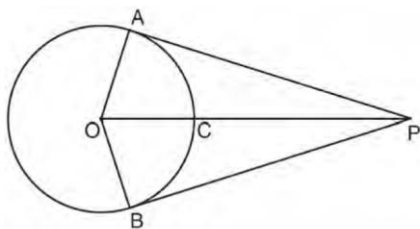
\overline{KJ} is tangent to $\odot M$ at J (not drawn to scale). Find the length of the radius r , to the nearest tenth.



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

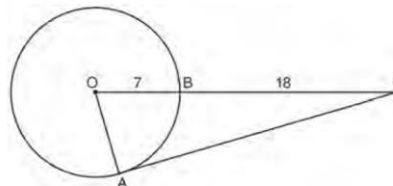
5)

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: $\angle AOP \cong \angle BOP$



6)

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



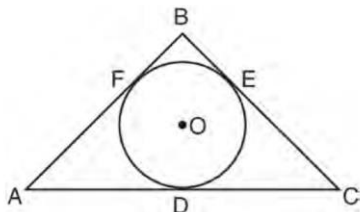
What is the length of \overline{AP} ?

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

SLO: I can use what I know to answer questions about common tangents and the relationship between tangents and diameters (or radii).

Problems worthy of attack prove their worth by fighting back. —Piet Hein THE ROAD TO WISDOM? Well, it's plain and simple to express. Err and err and err again, but less and less and less. —Piet Hein.

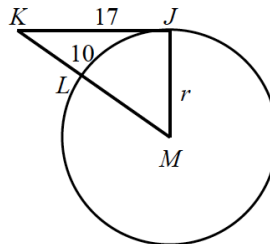
- 7) 250 In the diagram below, \overline{AB} , \overline{BC} , and \overline{AC} are tangents to circle O at points F , E , and D , respectively, $AF = 6$, $CD = 5$, and $BE = 4$.



What is the perimeter of $\triangle ABC$?

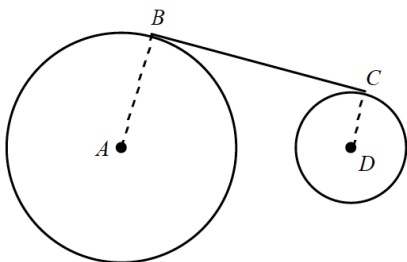
- 1 15
- 2 25
- 3 30
- 4 60

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

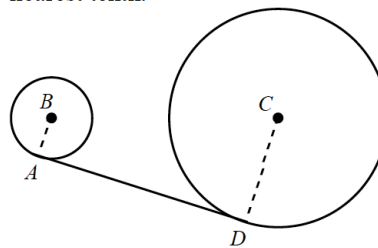


- [A] 18.9 [B] 9.4 [C] 10.8 [D] 19.7

- 9) \overline{BC} is tangent to $\odot A$ at B and to $\odot D$ at C (not drawn to scale). If $AB = 12$, $BC = 18$, and $DC = 3$, find the length of \overline{AD} , to the nearest tenth.



- 10) \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.

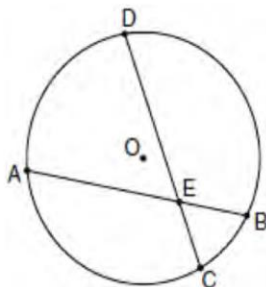


- [A] 32.5 [B] 18.8 [C] 24.7 [D] 24.4

SLO: I can use what I know to answer questions about common tangents and the relationship between tangents and diameters (or radii). Problems worthy of attack prove their worth by fighting back. —Piet Hein THE ROAD TO WISDOM? Well, it's plain and simple to express.

Err and err and err again, but less and less and less. — Piet Hein.

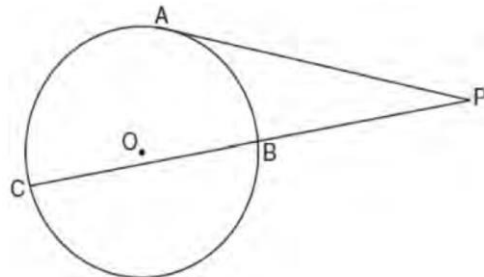
- 11) 247 In the diagram of circle O below, chord \overline{AB} intersects chord \overline{CD} at E , $DE = 2x + 8$, $EC = 3$, $AE = 4x - 3$, and $EB = 4$.



What is the value of x ?

- 1 1
- 2 3.6
- 3 5
- 4 10.25

- 12) 244 In the diagram below, tangent \overline{PA} and secant \overline{PBC} are drawn to circle O from external point P .

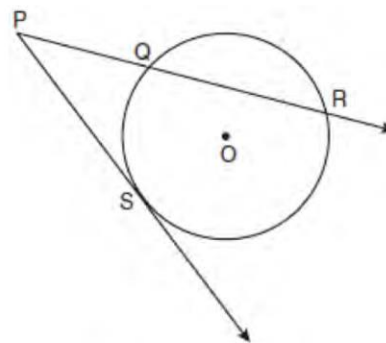


If $PB = 4$ and $BC = 5$, what is the length of \overline{PA} ?

- 1 20
- 2 9
- 3 8
- 4 6

13)

- 14) 242 In the diagram below, \overline{PS} is a tangent to circle O at point S , \overline{PQR} is a secant, $PS = x$, $PQ = 3$, and $PR = x + 18$.



(Not drawn to scale)

What is the length of \overline{PS} ?

- 1 6
- 2 9
- 3 3
- 4 27