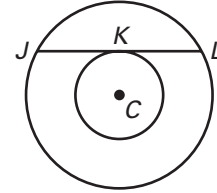


Challenge: Skills and Applications

For use with pages 595–602

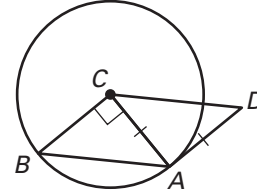
1. In the diagram, C is the center of both circles, and the radii of the circles are 8 and 17. If \overline{JL} is tangent to the circle of radius 8, find the length of \overline{JL} .



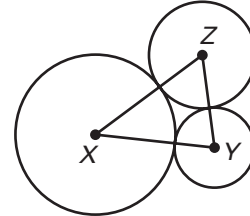
2. Refer to the diagram. Write a two-column proof.

Given: C is the center of the circle, $\overline{AC} \cong \overline{AD}$,
 $\overline{AC} \perp \overline{BC}$, and \overline{AD} is tangent to the circle at A .

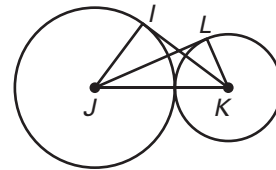
Prove: $ABCD$ is a parallelogram.



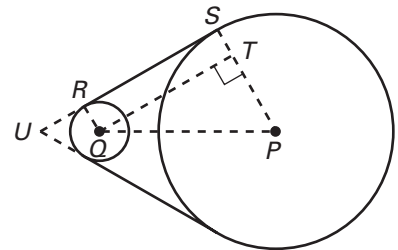
3. If $XY = 18$, $YZ = 14$, and $XZ = 20$, find the radius of each circle.



4. In the diagram, \overline{IK} and \overline{JL} are tangent to the circles at I and L , respectively. If \overline{IJ} and \overline{KL} are radii, $IJ = 15$, and $IK = 20$, find JL .



5. The diagram shows two pulleys with a belt wrapped snugly around the pulleys so that one pulley can drive the other. \overline{RS} is tangent to the circles at R and S , respectively, \overline{QT} is perpendicular to \overline{SP} , and Q and P are centers of the circles. Let $QR = 2$ in., $PS = 8$ in., and $PQ = 12$ in.



- Write a paragraph proof to show that $QRST$ is a rectangle.
- Find RS .
- Find $m\angle P$.