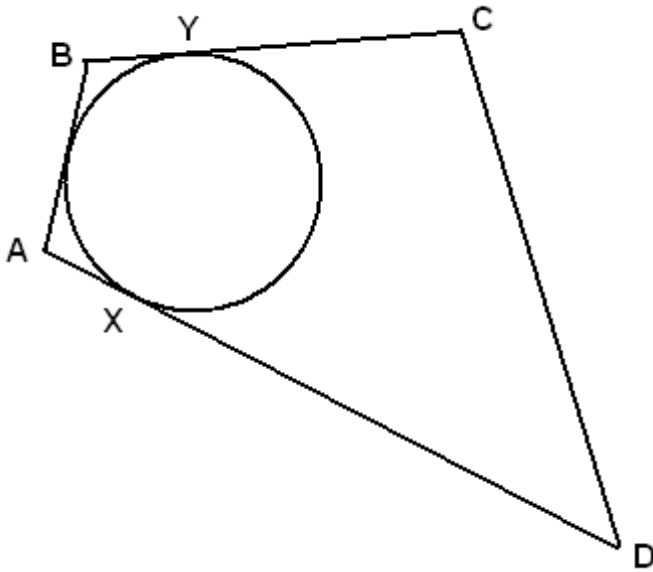


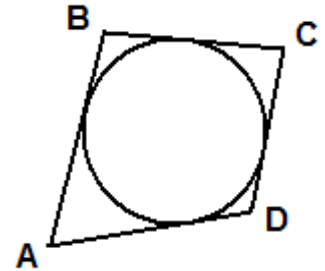
**Advanced Geometry**  
**Tricky Tangent Problems?**

**Name:** \_\_\_\_\_

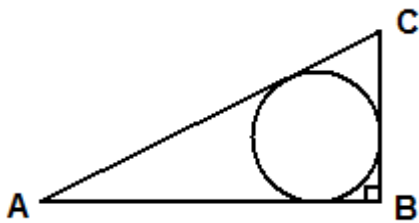
[ EX 1 ] Three sides of ABCD are tangent to the circle below. Given that  $AB = 6$ ,  $BC = 7$ ,  $CD = 8$ , and  $AD = 9$ , find  $CY + DX$ .



[ EX 2 ] Each side of quadrilateral ABCD is tangent to the given circle.  $AB = 10$ ,  $BC = 15$ , and  $AD = 18$ . Find  $CD$ .

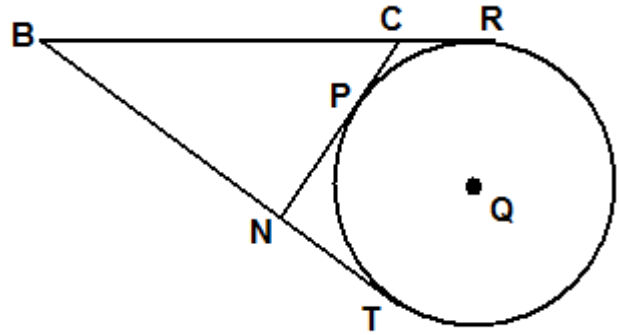


[ EX 3 ] What is the perimeter of  $\triangle ABC$  if the radius of the circle is 6 and  $AC = 25$ ?  
Note: The circle is tangent to each side of the triangle.



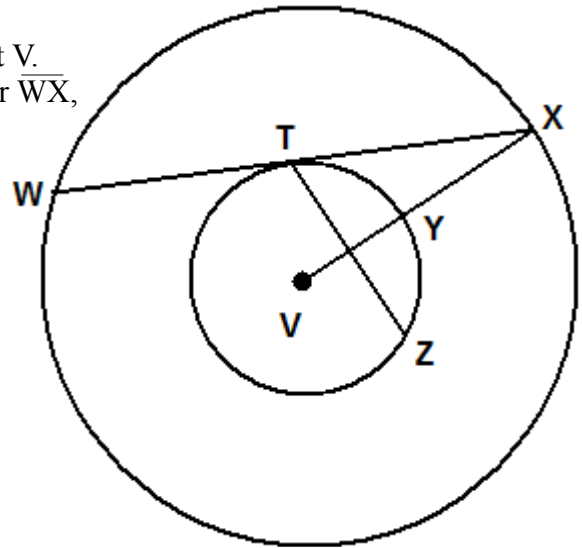
- [ EX 4 ] B is 34 cm from the center of circle Q, whose radius is 16 cm long.  
 $\overline{BT}$  and  $\overline{BR}$  are tangent to circle Q and points T and R, respectively.  
 $\overline{NC}$  is tangent to circle Q at P.

Find the perimeter of  $\triangle NBC$ .



- [ EX 5 ] You are given two concentric circles centered at V.  
 $\overline{WX} = 40$ ,  $\overline{TZ} = 24$ , T is a point of tangency for  $\overline{WX}$ ,  
and  $\overline{TZ}$  is perpendicular to  $\overline{VX}$ .

Find XY.



- [ EX 6 ] Given circles P and Q with AC tangent to the circles Q and P at points C and B respectively.  $DQ = 10$  and  $PB = 4$ .

Find AB.

