Let's try some examples using these theorems.

1. $\overline{PA}$ and $\overline{PB}$ are tangent segments from P. PO = 17, OA = 8, m∠APO = 28. Find m∠POA and PB.

$m\angle POA = 90 - 28$

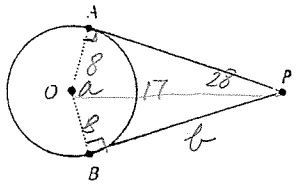
$m\angle POA = 62$

$8^2 + b^2 = 17^2$

$b^2 = 225$

$b = 15$

$PB = 15$



2. $\overline{BC}$ is a tangent. BC = 12, AC = 5. Find BD.

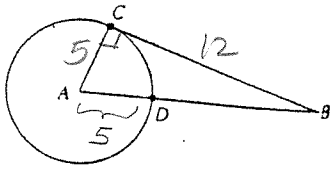
$5^2 + 12^2 = (AB)^2$

$169 = (AB)^2$

$13 = AB$

$BD = 13 - 5$

$BD = 8$



around

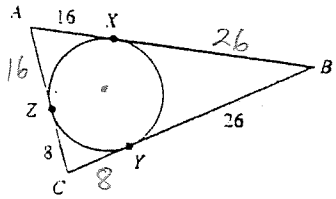
3. ΔABC is a circumscribed triangle. Find the perimeter of ΔABC.

$AB = 42$

$AC = 24$

$BC = 34$

$P = 100$



4. Given: Each side of quadrilateral ABCD is tangent to the circle. AB = 10, BC = 15, AD = 18. Find CD.

$CD = 23$

Explore:

Try putting different values for x,

CD = 23 always

algebraically:

$CD = 15 - x + 8 + x$

$CD = 23$