



# GEOMETRY

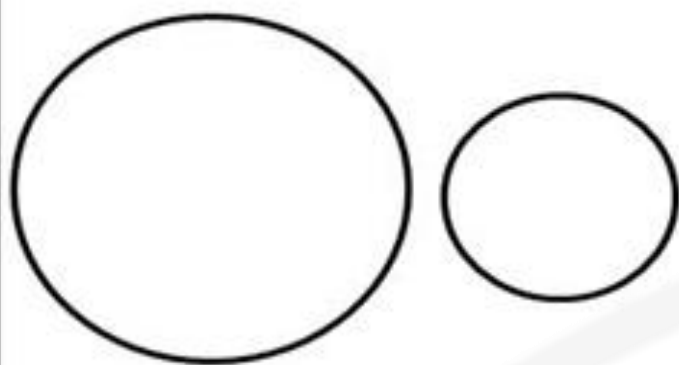
## Capítulo 1

**5th**  
SECONDARY

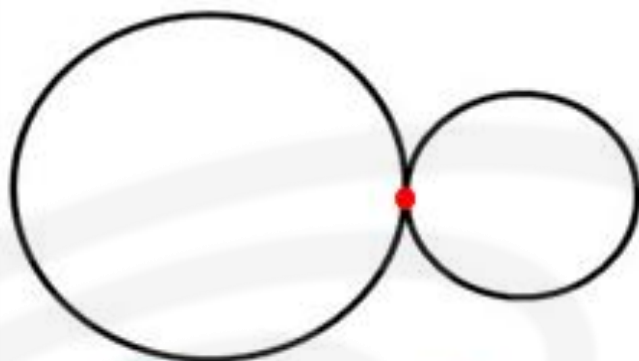
**LÍNEAS ASOCIADAS A  
LA  
CIRCUNFERENCIA**



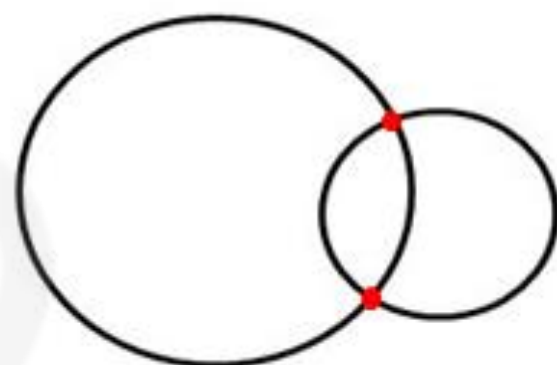
 **SACO OLIVEROS**



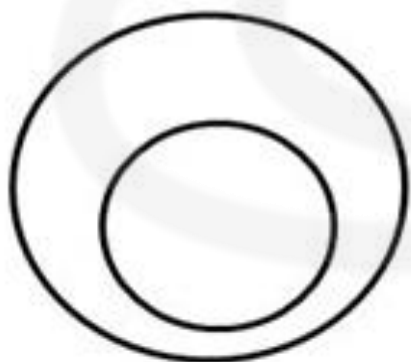
**Exteriores**



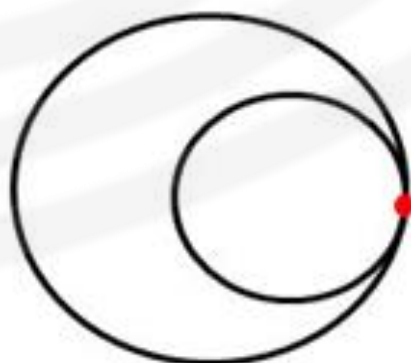
**Tangentes  
exteriores**



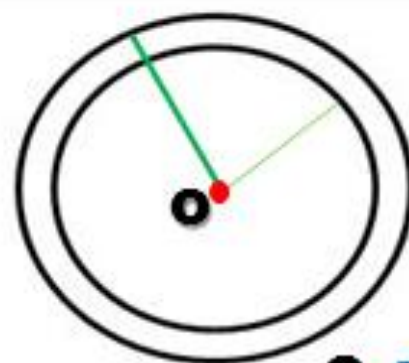
**Secantes**



**Interiores**



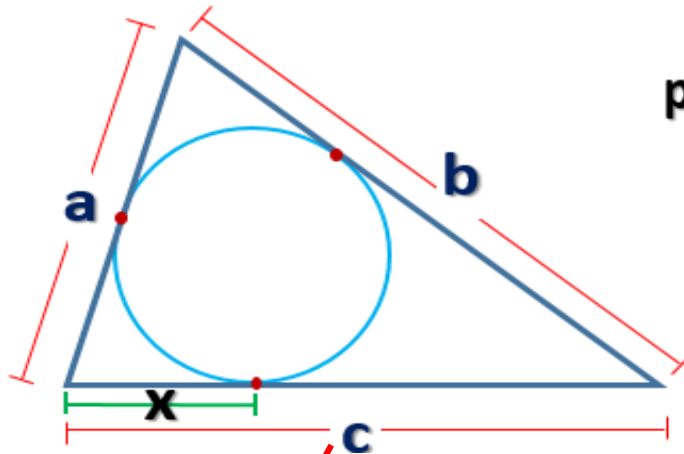
**Tangentes  
interiores**



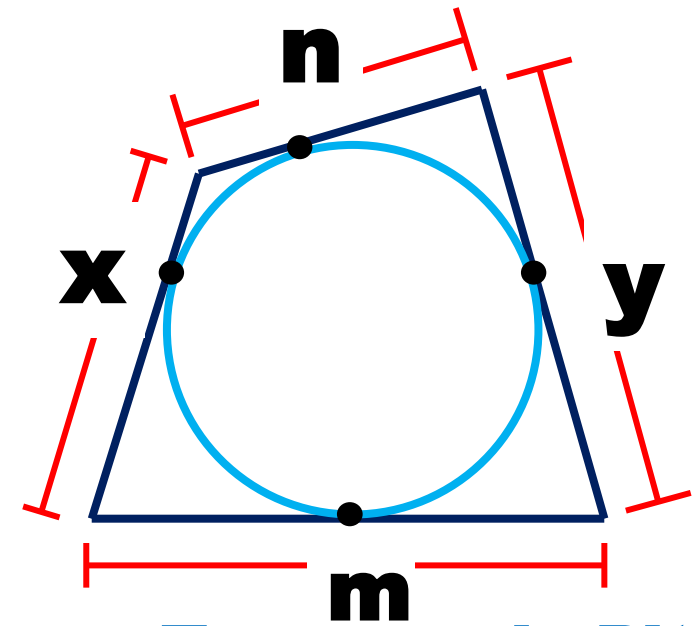
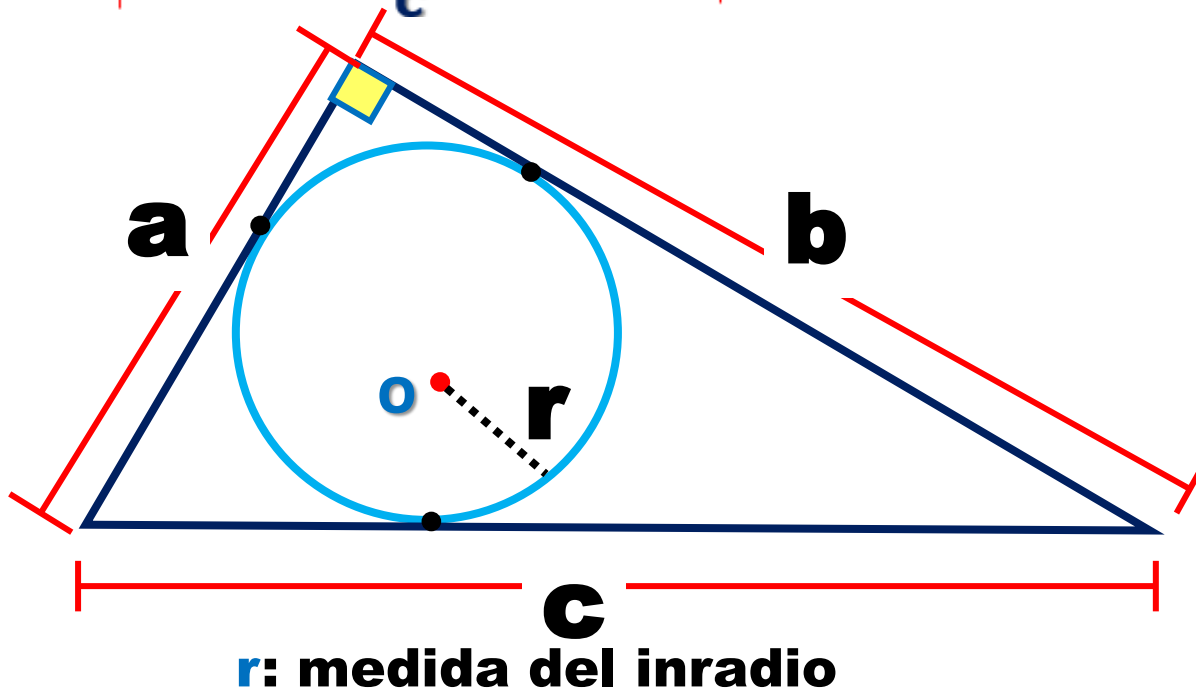
**O: Centro**

**Concéntricas**





$$x = p - b$$



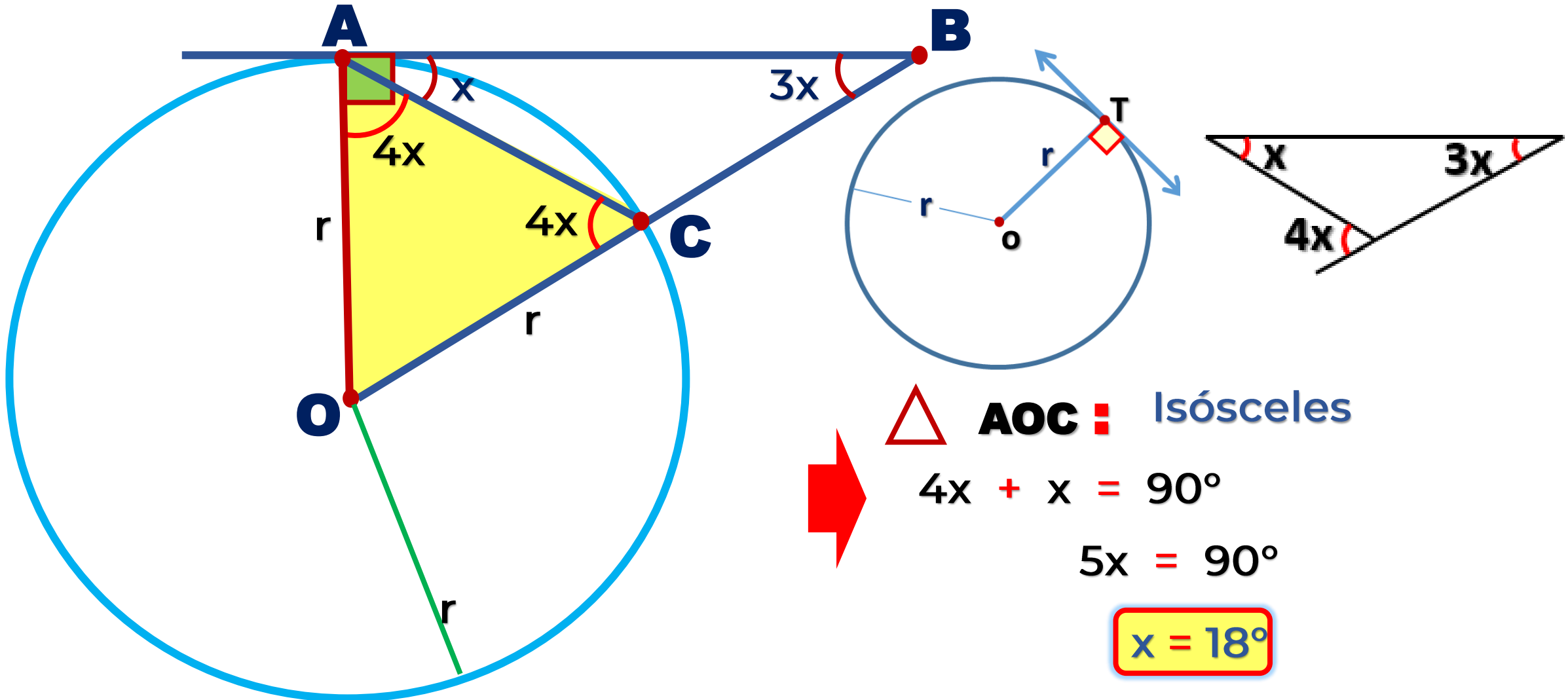
Teorema de Pitot

$$x + y = m + n$$

Teorema de Poncelet

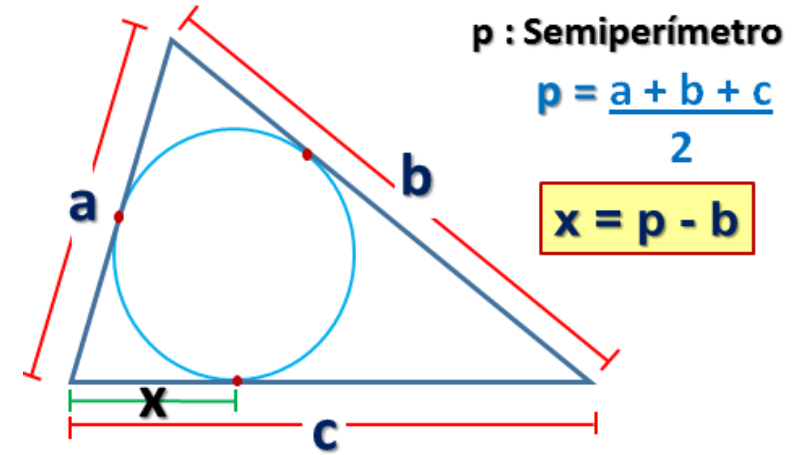
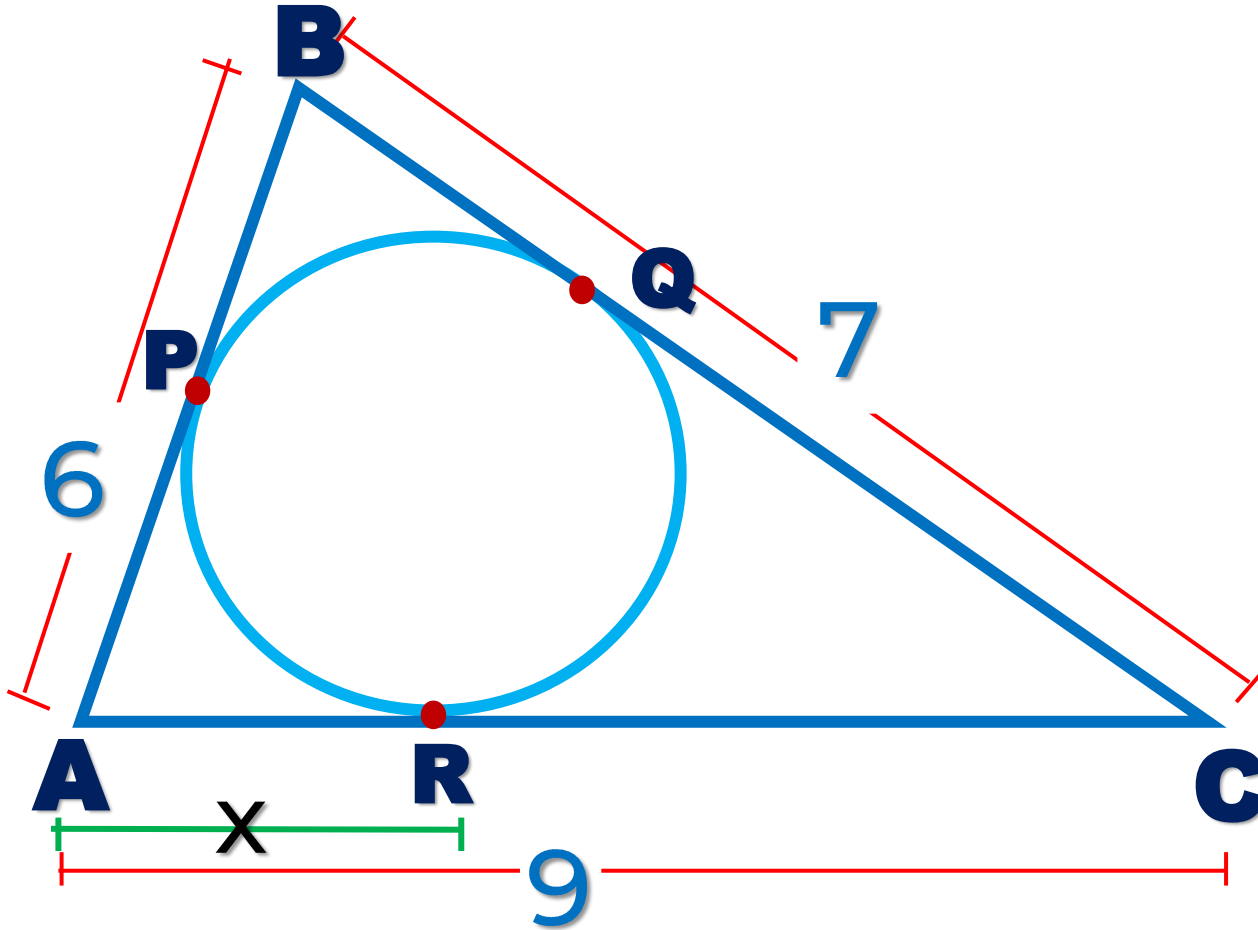
$$a + b = c + 2r$$

1. Halle el valor de  $x$  si  $O$  es centro y  $A$  es punto de tangencia.





2. En un  $\triangle ABC$ , donde  $AB = 6$ ,  $BC = 7$  y  $AC = 9$ , la circunferencia inscrita es tangente a  $\overline{AB}$ ,  $\overline{BC}$  y  $\overline{AC}$  en los puntos P, Q y R, respectivamente. Halle AR.



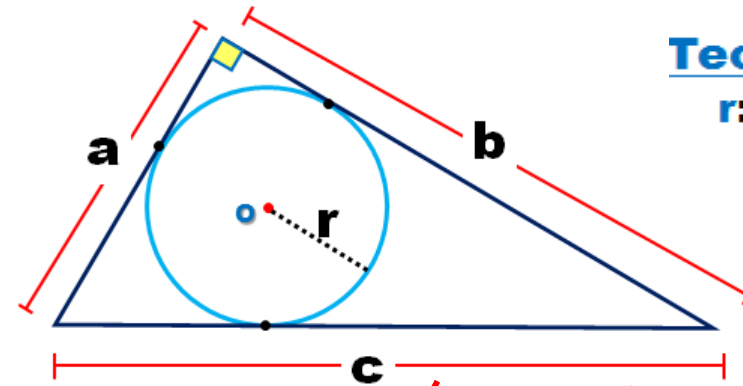
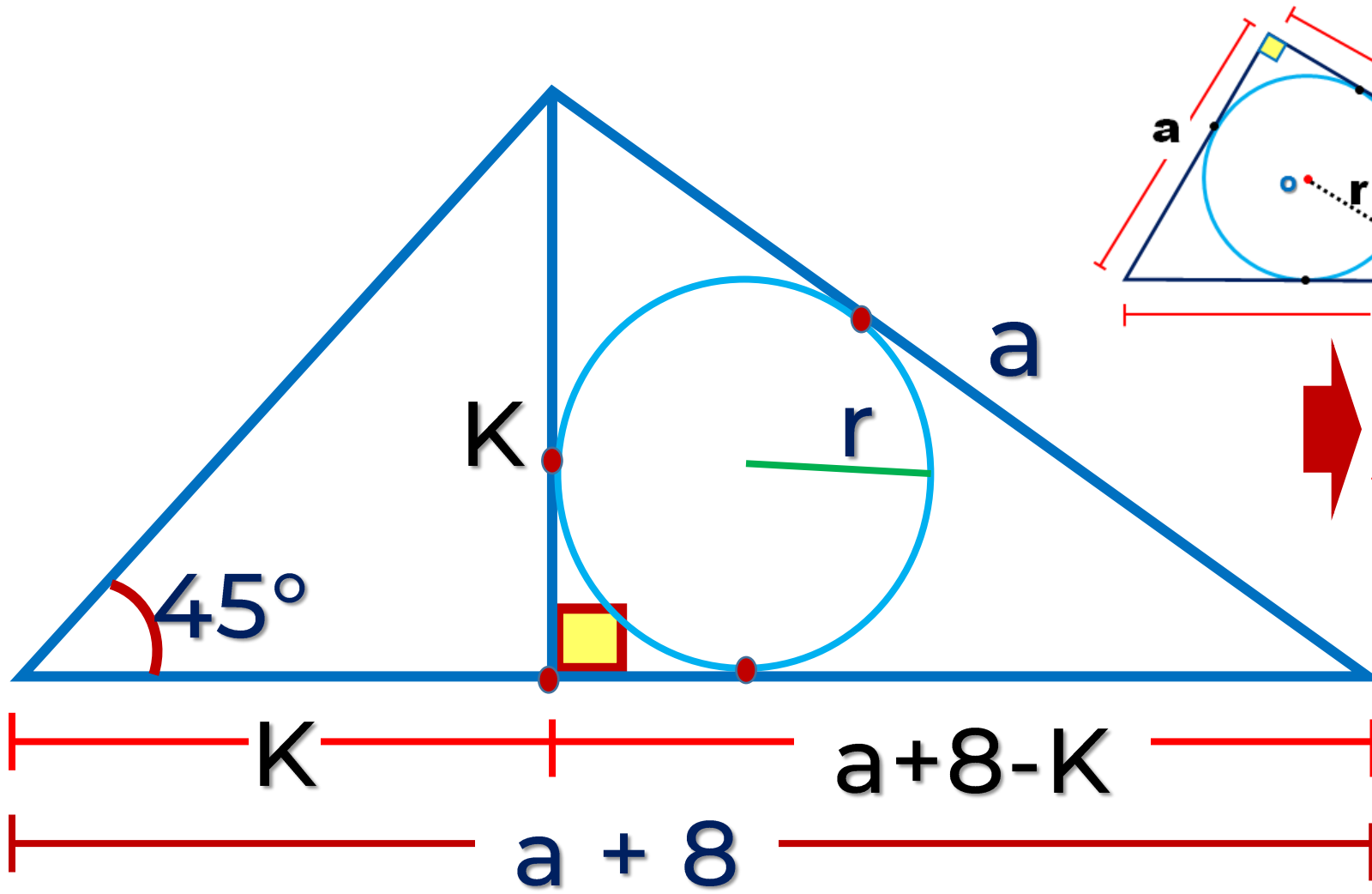
- $p = \frac{6 + 7 + 9}{2}$   $p = 11$
- $x = p - b$  (Reemplazando)

$\downarrow$     $\downarrow$   
 $x = 11 - 7$

$x = 4$



## 4. Halle la longitud del radio de la circunferencia inscrita.



**Teorema de Poncelet**

$r$ : medida del inradio

$$a + b = c + 2r$$

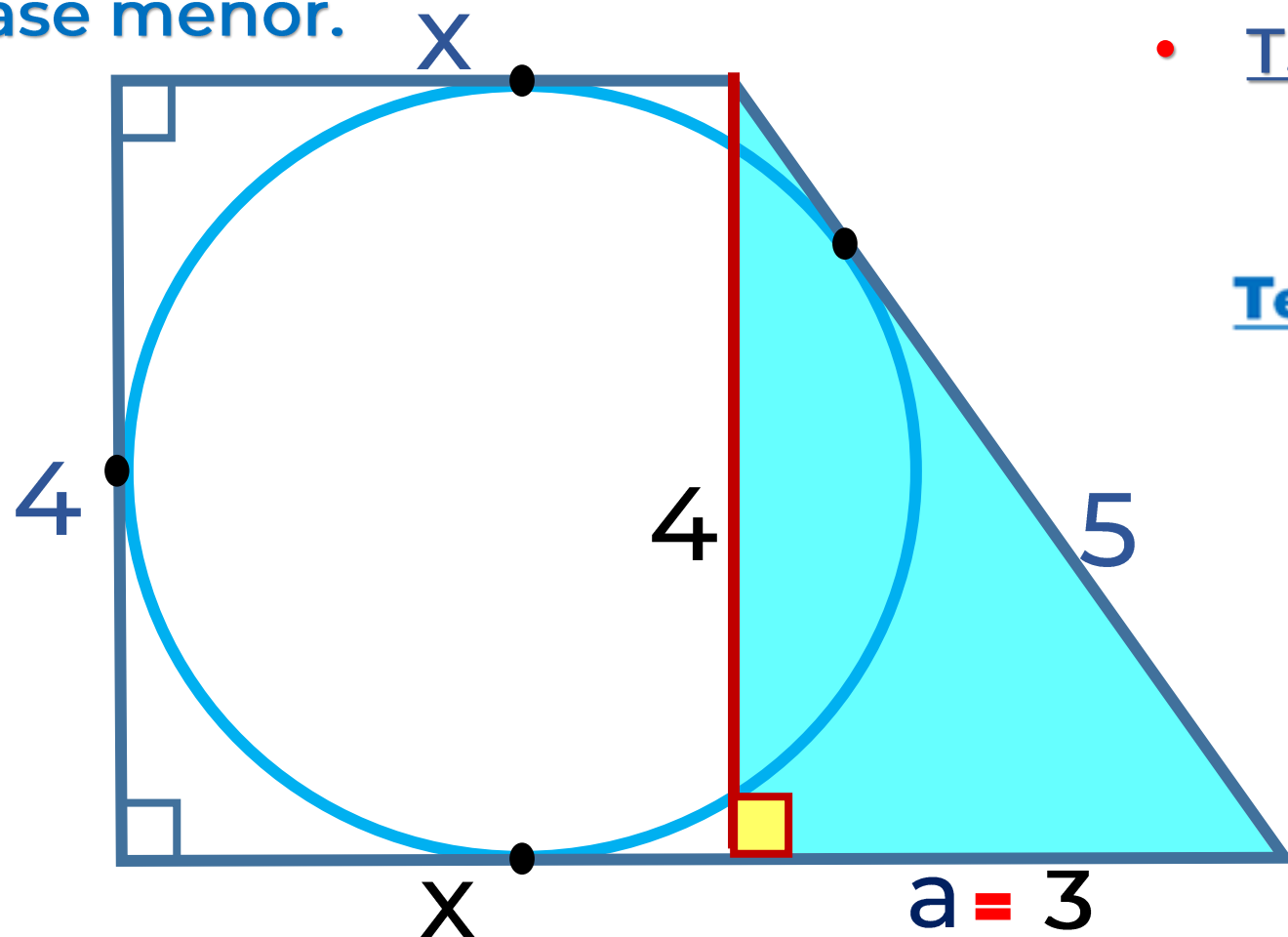
$$a + 8 - K + K = a + 2r$$

$$8 = 2r$$

$$r = 4$$



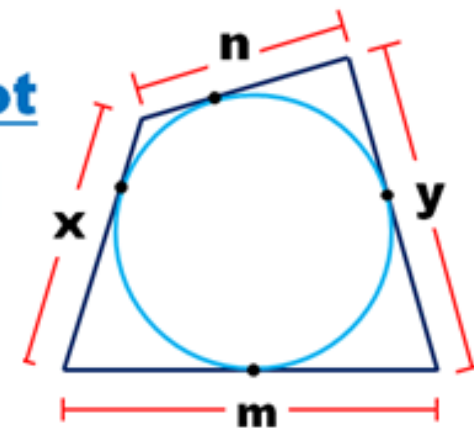
5. Se tiene un trapecio rectángulo circunscrito a una circunferencia. Si las longitudes de sus lados no paralelos son 4 y 5, halle la longitud de su base menor.



- T. Pitágoras  $5^2 = a^2 + 4^2$   
 $a = 3$

Teorema de Pitot

$$x + y = m + n$$

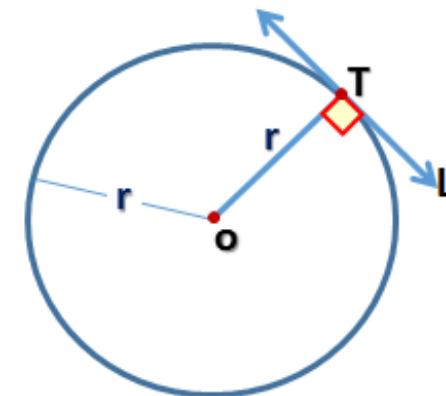
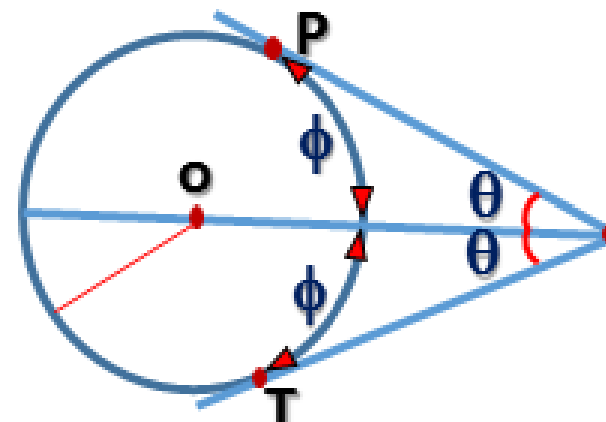
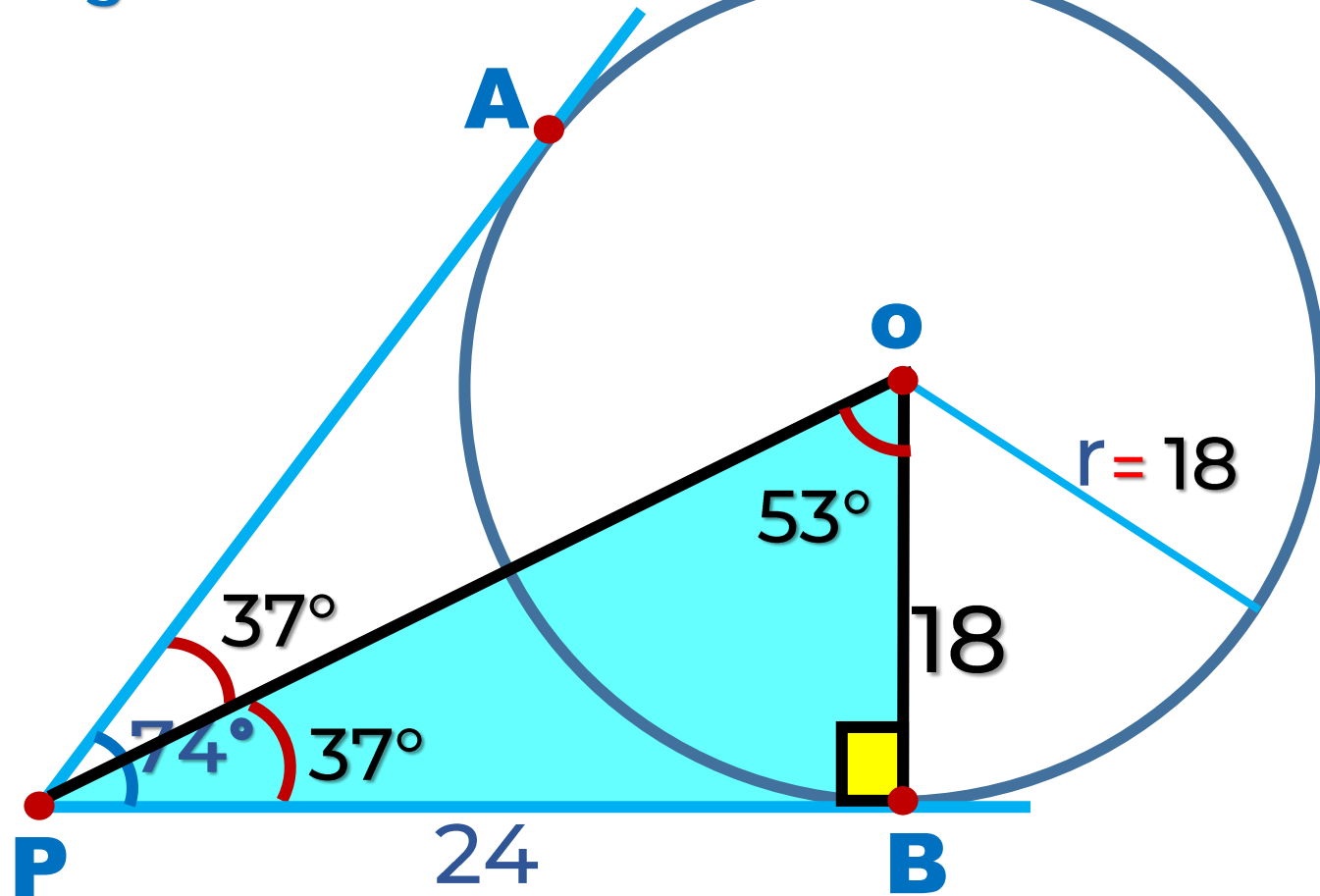


$$\Rightarrow x + (x + 3) = 4 + 5$$

$$2x = 6$$

$$x = 3$$

6. Desde un punto P exterior a una Circunferencia, se trazan los segmentos tangentes PA y PB. Si la  $m\angle APB = 74^\circ$  y  $PB = 24$ , halle la longitud del radio de dicha circunferencia.

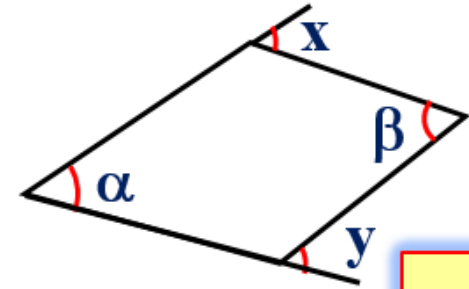
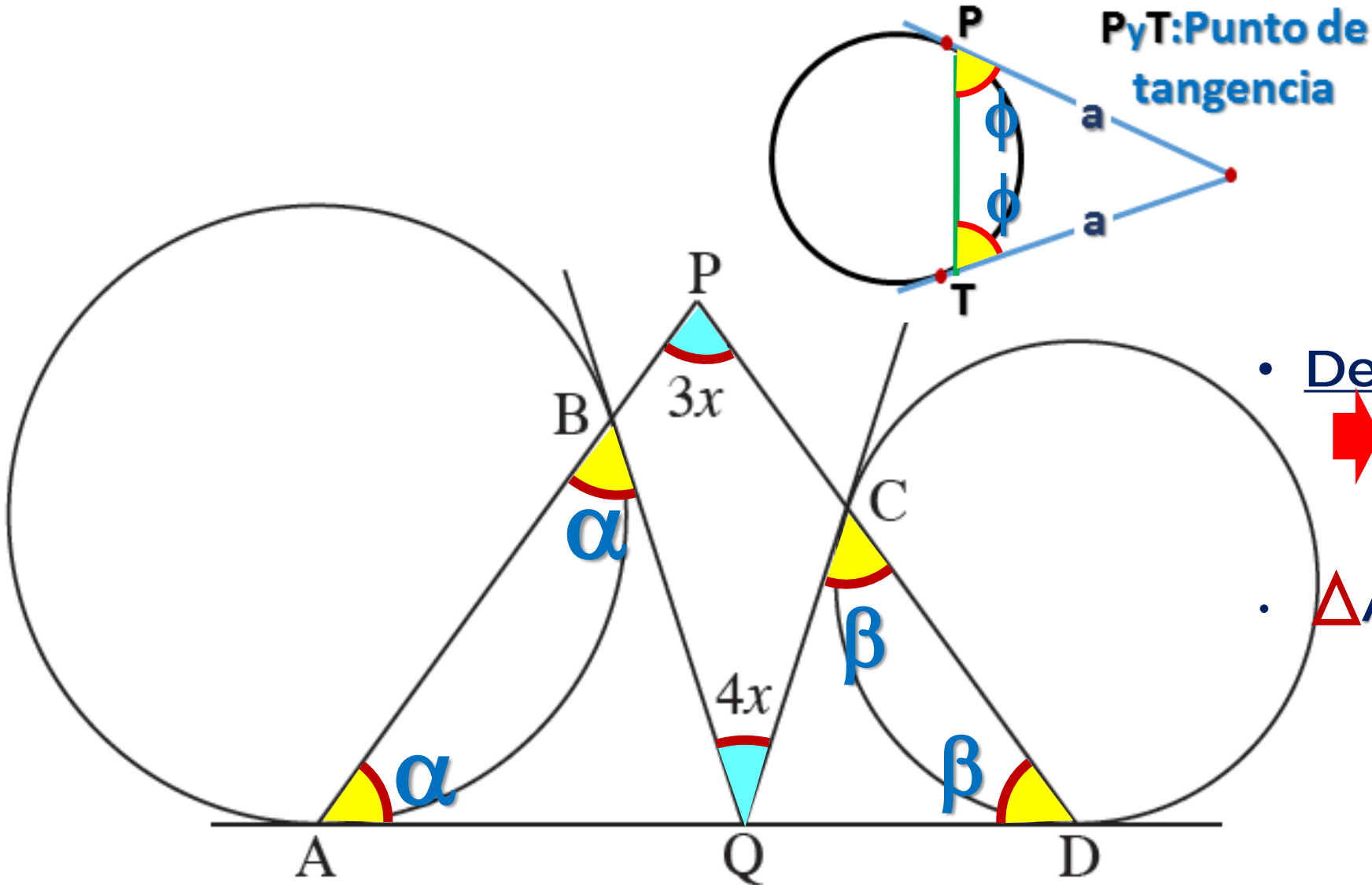


- Por notable  $37^\circ$  y  $53^\circ$



$$r = 18$$

7. Halle el valor de  $x$  si A, B, C y D son puntos de tangencia.



$$x + y = \alpha + \beta$$

• Del gráfico

$$\alpha + \beta = 4x + 3x$$

$$\alpha + \beta = 7x$$

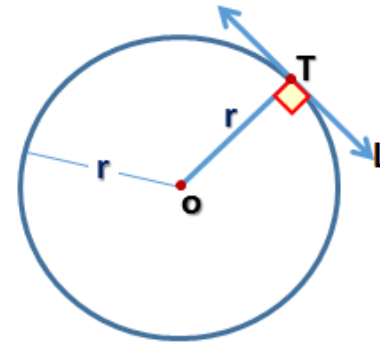
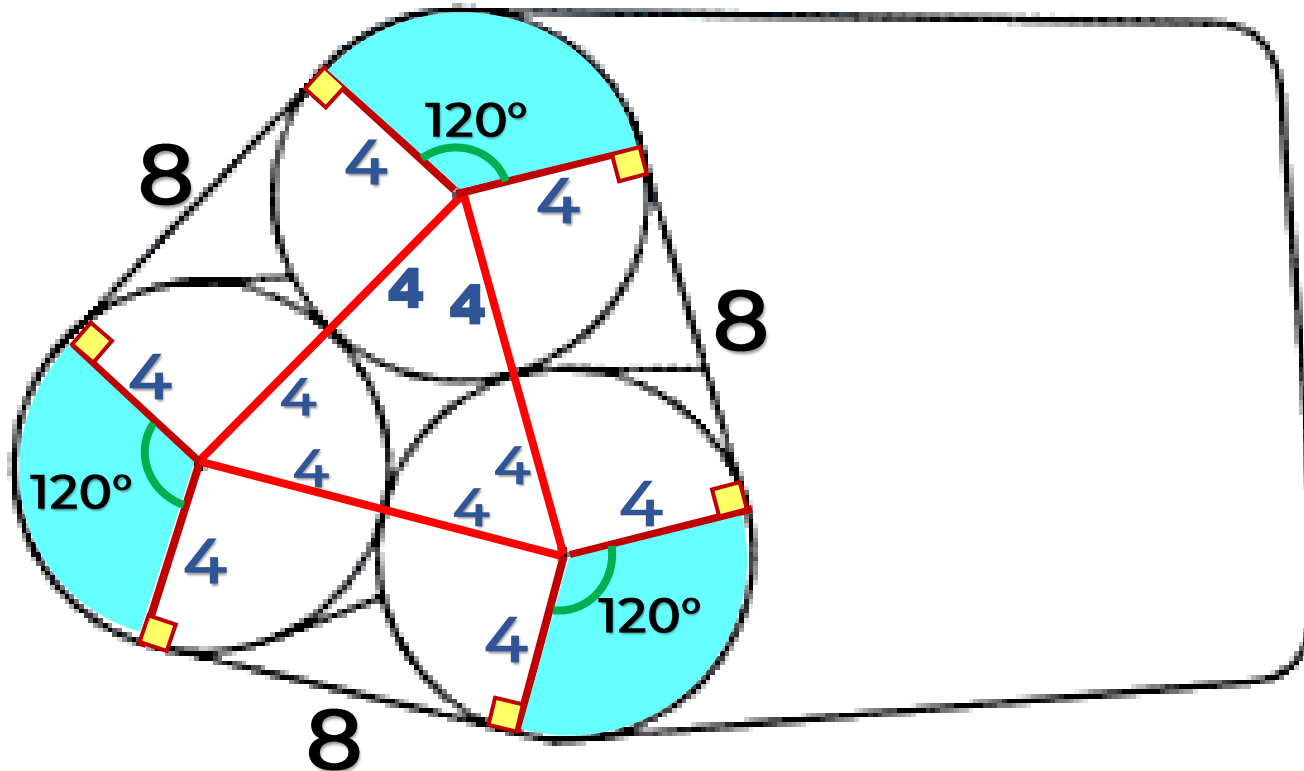
•  $\triangle APD$  :

$$\alpha + \beta + 3x = 180^\circ$$

$$7x + 3x = 180^\circ$$

$$x = 18^\circ$$

8. En la figura, halle la longitud de la faja que rodea a los tres rodillos mostrados si sus radios miden 4 cm.



L: longitud de la  
circunferencia

$$L_{\circ} = 2\pi \cdot r$$

$$L(\text{faja}) = 8 + 8 + 8 + L_{\circ}$$

$$L(\text{faja}) = 24 + 2\pi \cdot (4)$$

$$L(\text{faja}) = 24 + 8\pi$$

$$L(\text{faja}) = 8(3 + \pi) \text{ cm}$$



 **SACO**  
**OLIVEROS**

The image features a logo for 'SACO OLIVEROS' centered on a background split diagonally from the top-left to the bottom-right. The upper-left portion is blue, and the lower-right portion is red. A large, faint, light-blue spiral graphic is centered behind the text, spanning across the diagonal. The text 'SACO' is in a bold, white, sans-serif font, and 'OLIVEROS' is in a larger, bold, white, sans-serif font. To the left of 'SACO' is a small white icon consisting of a spiral with an arrow pointing clockwise.