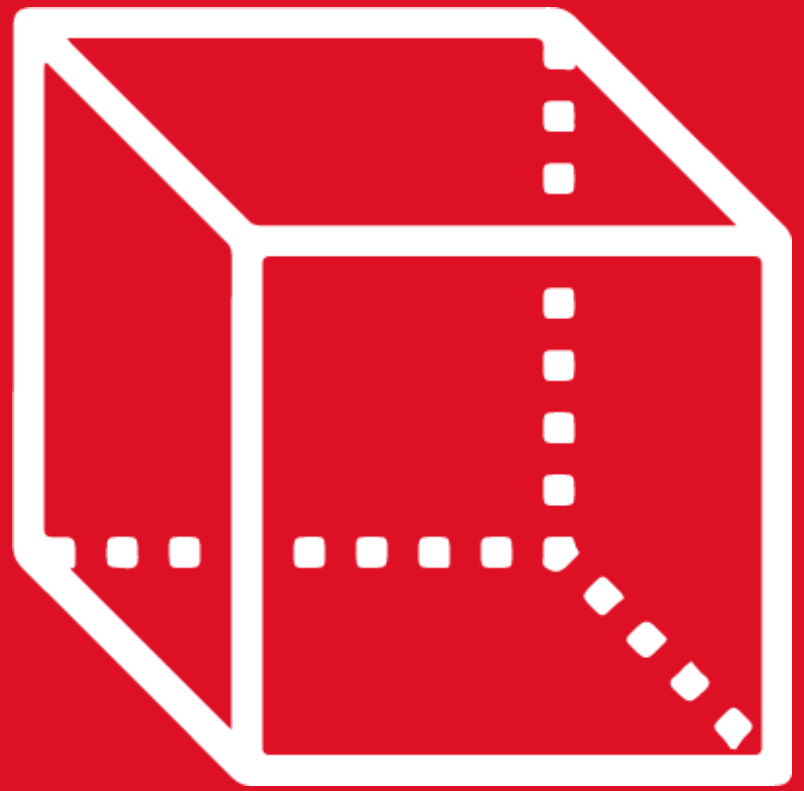
GEOMETRÍA

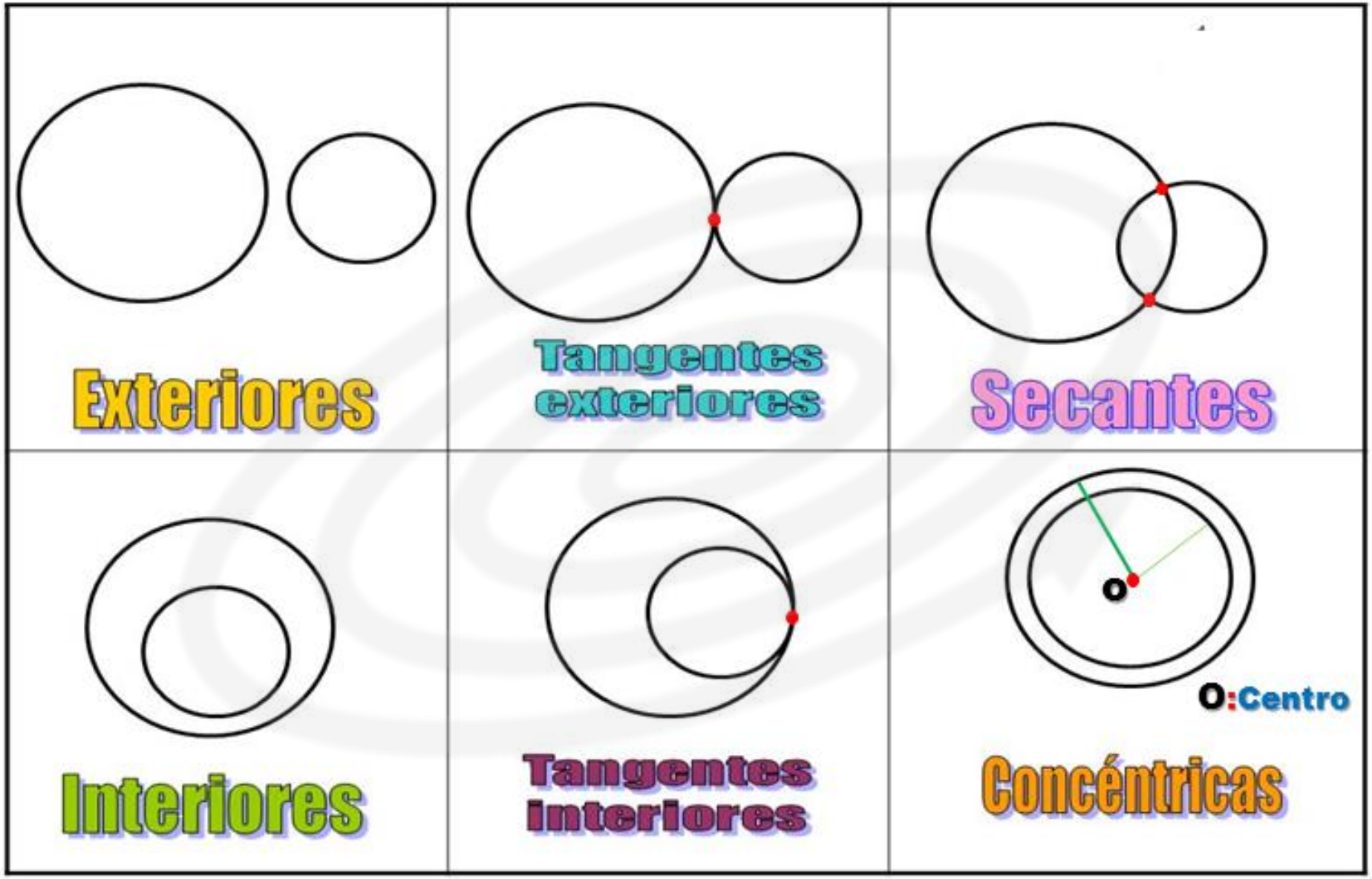
Capítulo 14



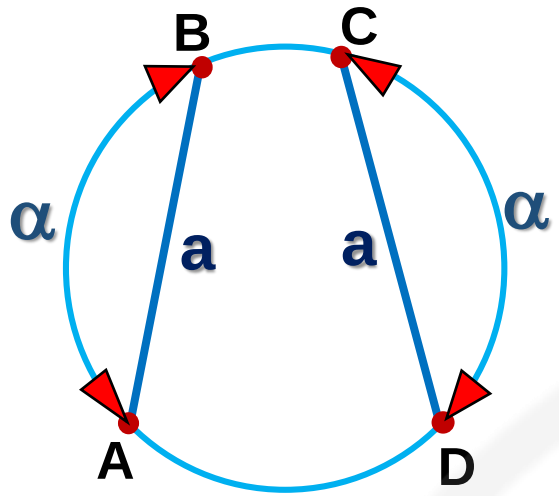
3th
SECONDARY

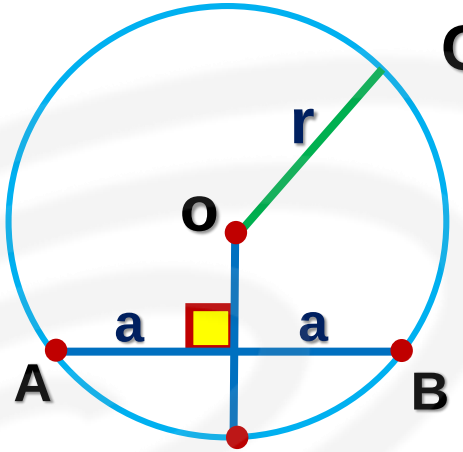
CIRCUNFERENCIA II

SACO OLIVEROS

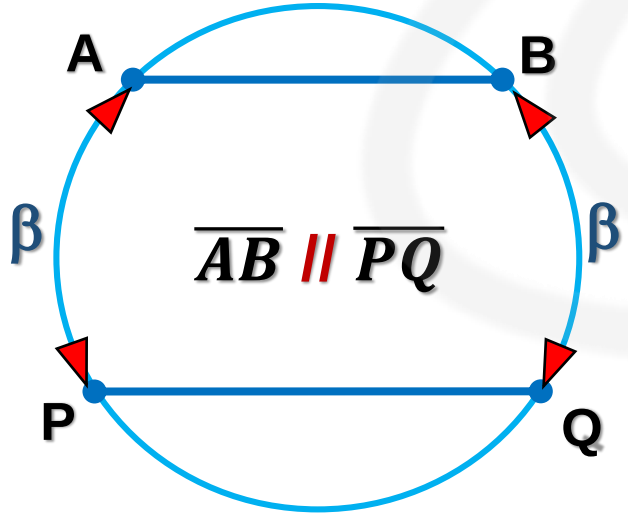

Exteriores
Tangentes exteriores
Secantes
Interiores
Tangentes interiores
O
O:Centro
Concéntricas

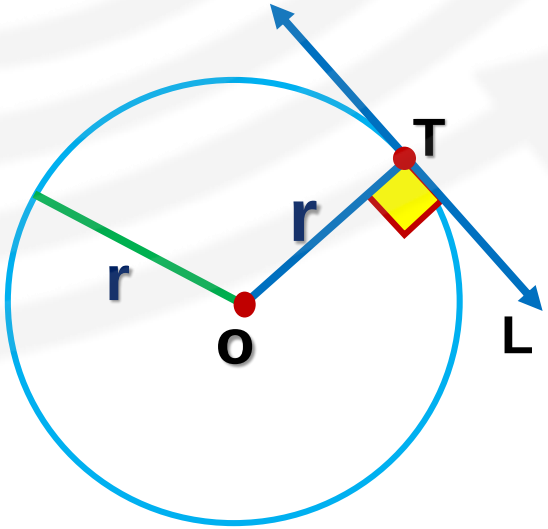
CIRCUNFERENCIAS II





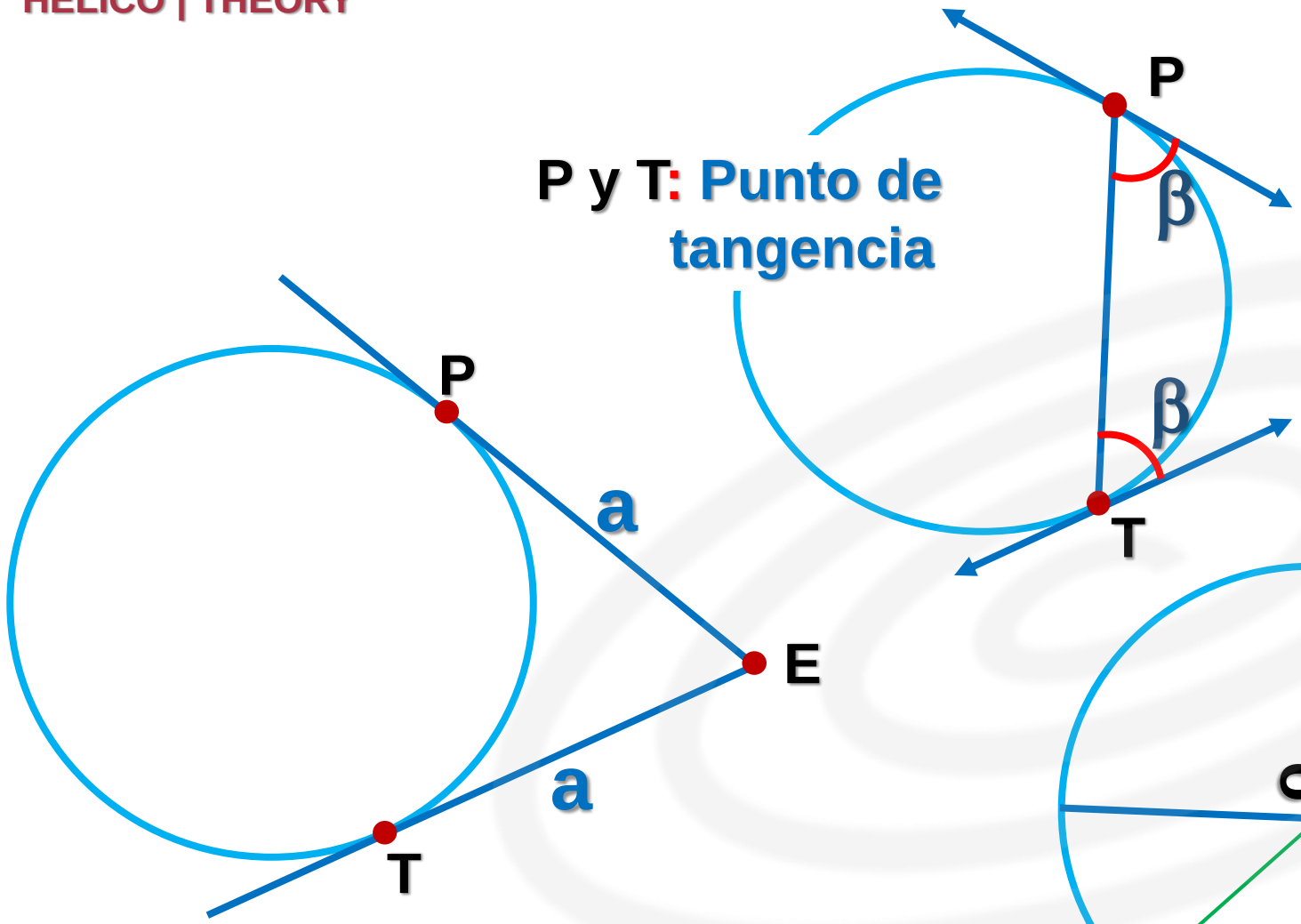
O: Centro



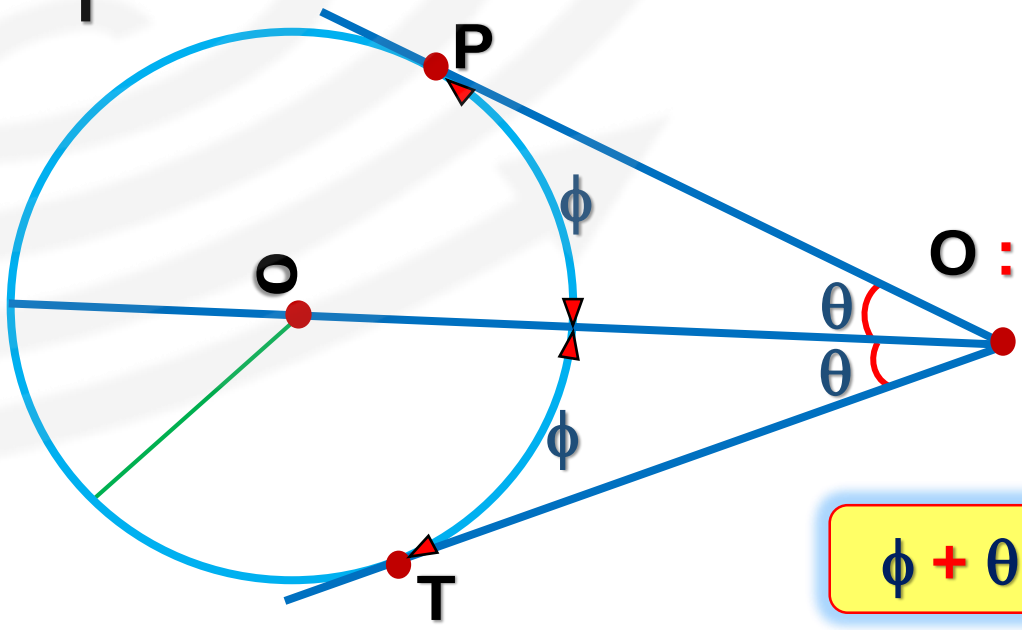


O : Centro

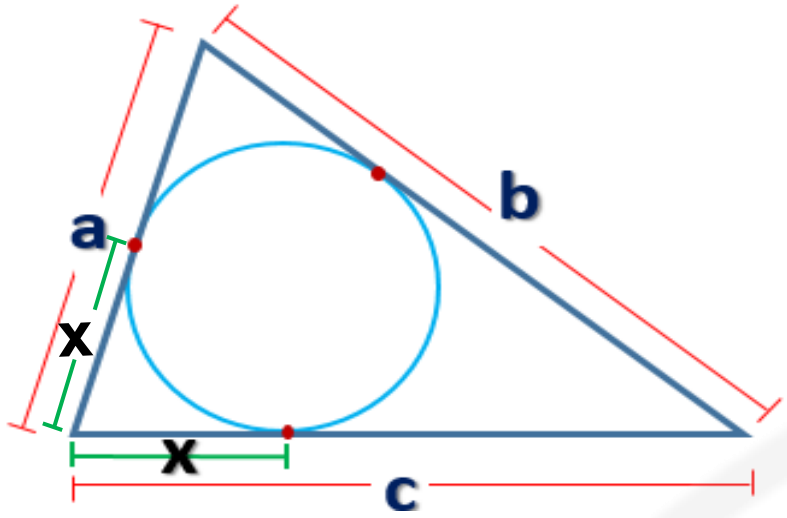
T : Punto de tangencia


P
T
E
a
a
P y T: Punto de tangencia
P y T: Punto de tangencia

P
β
β
T


P
O
T
ϕ
ϕ
θ
θ
O : Centro

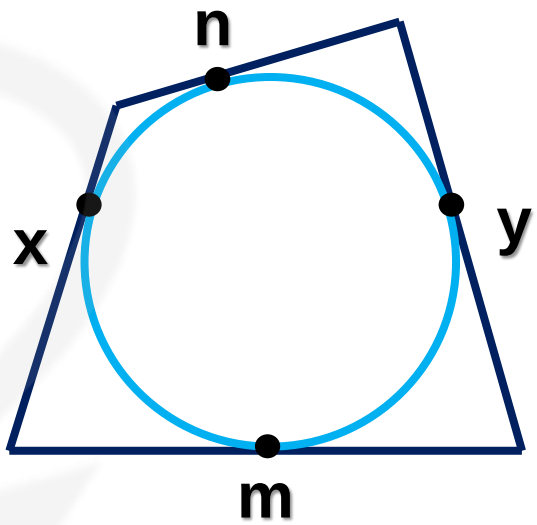
$\phi + \theta = 90°$



p : Semiperímetro

$$p = \frac{a + b + c}{2}$$

$$x = p - b$$



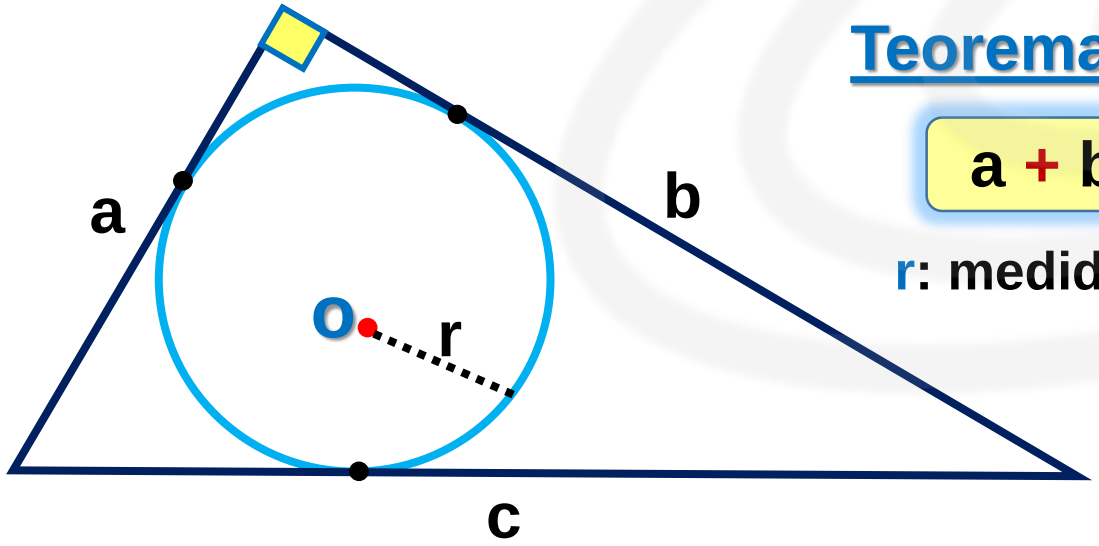
Teorema de Poncelet

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

r: medida del inradio

Teorema de Pitot

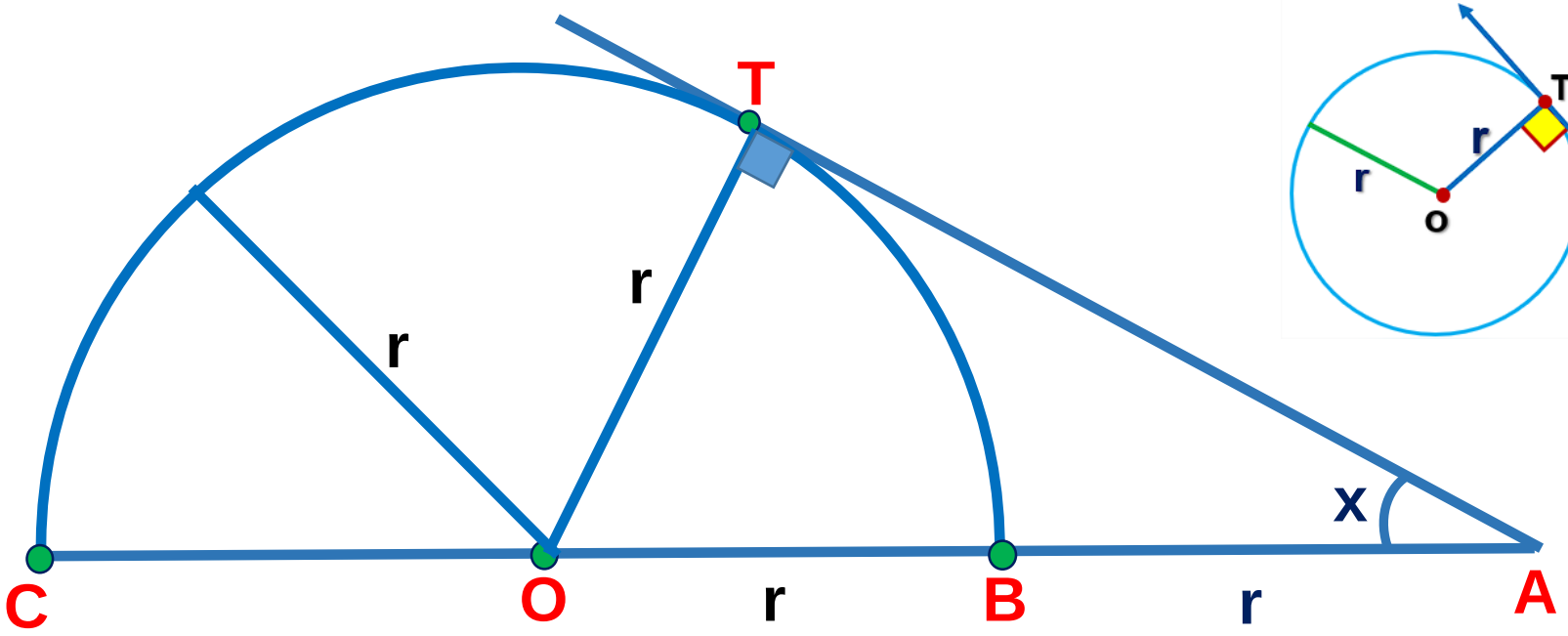
$$x + y = m + n$$

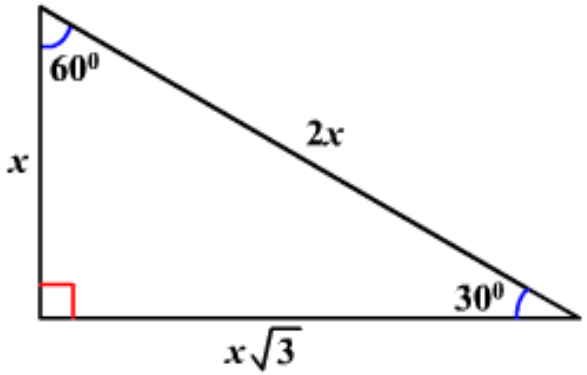


1. En la figura, AB = r. Calcule la m∢BAT si T es el punto de tangencia y O es centro de la semicircunferencia.

RESOLUCIÓN:

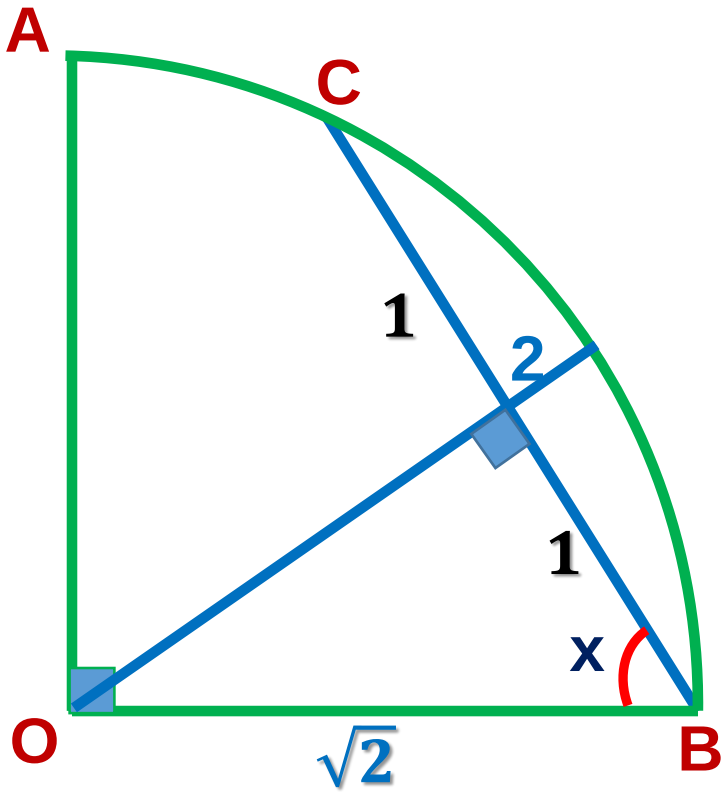
- Piden x:
- AB = r





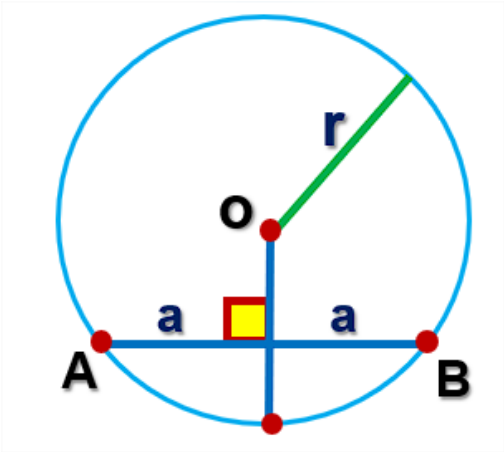
∴ x = 30°

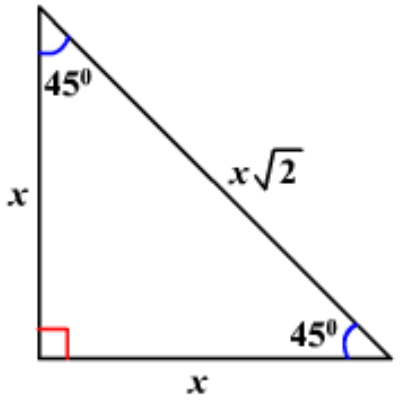
2. En la figura, si O es centro, BC = 2 m y OB = $\sqrt{2}$ m, halle el valor de x.



RESOLUCIÓN:

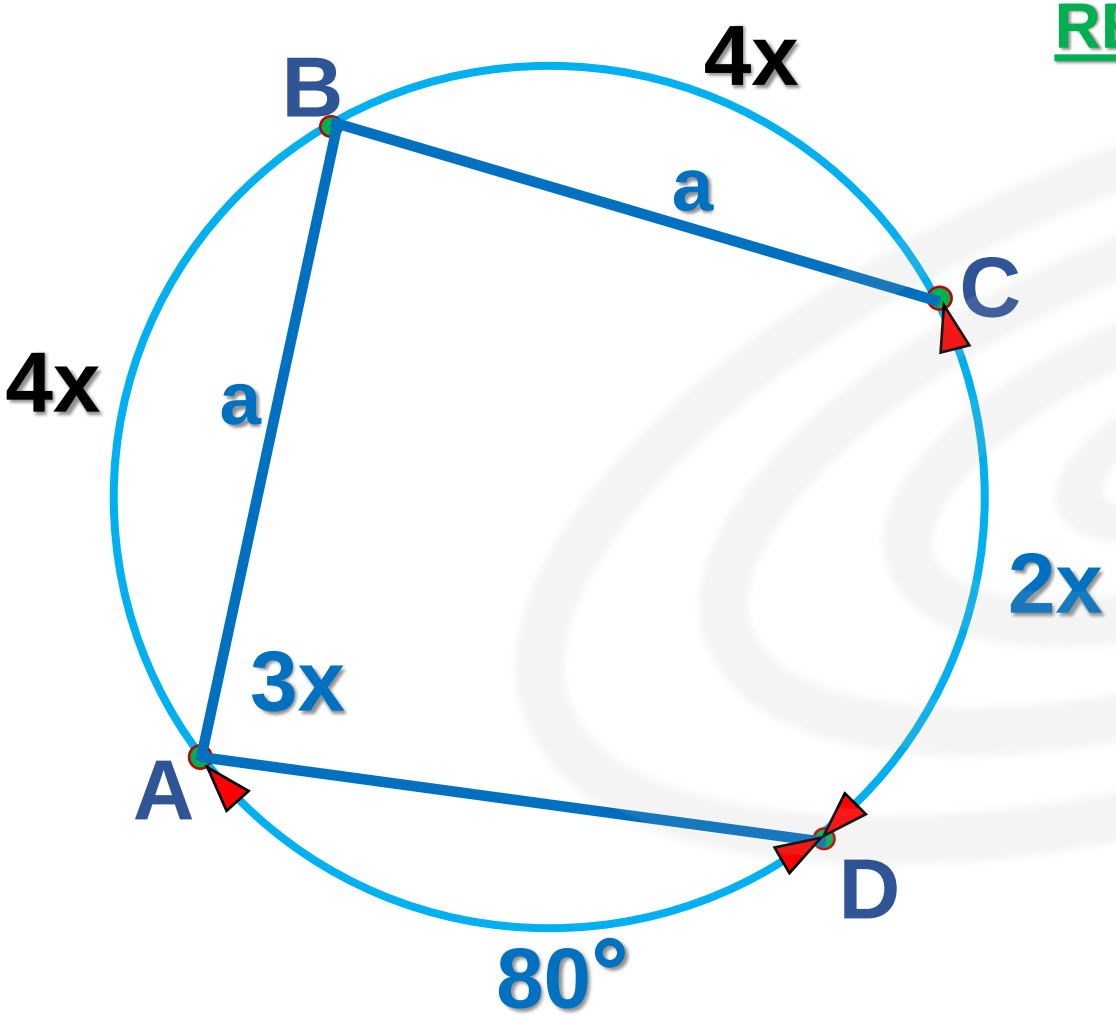
- **Piden x:**
- **BC = 2 m, OB = $\sqrt{2}$ m**





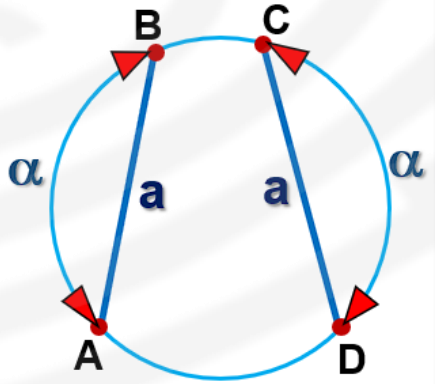
$\therefore x = 45°$

3. En la figura, AB = BC. Halle el valor de x.



RESOLUCIÓN:

- Piden x:
- AB = BC = a



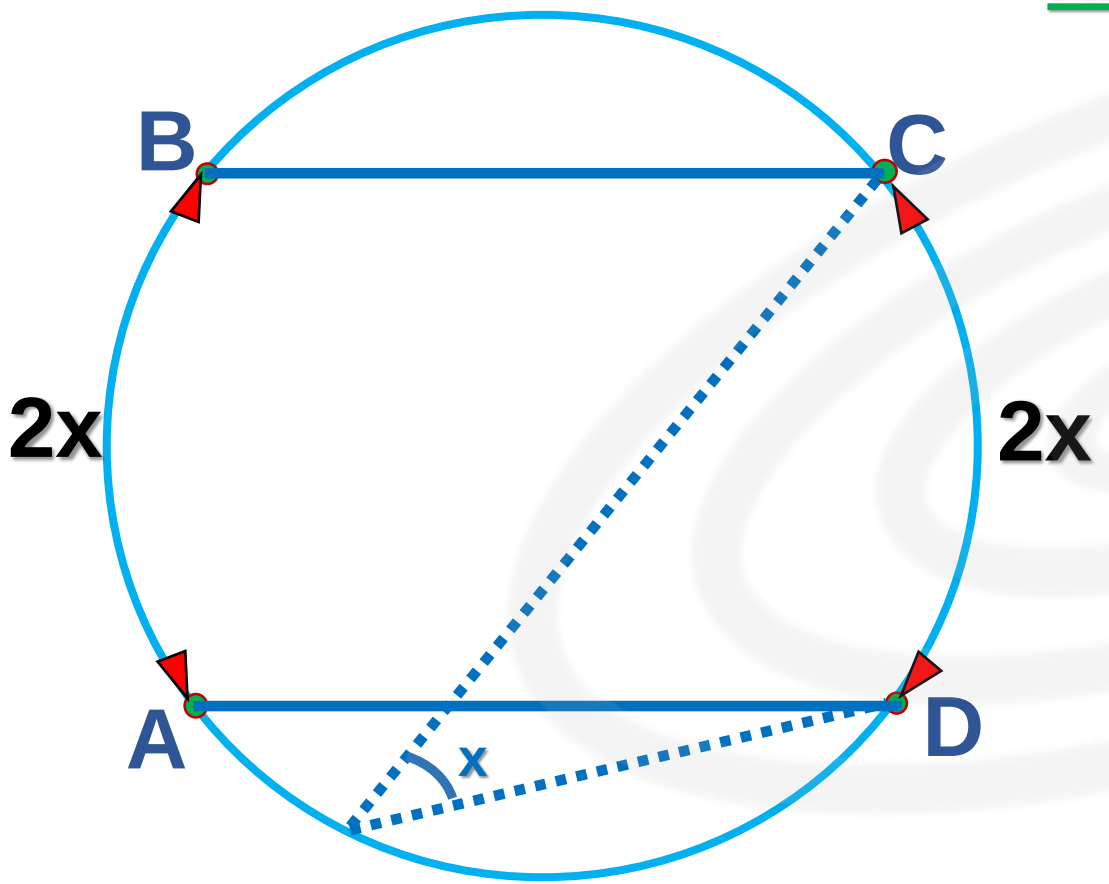
$$4x + 4x + 2x + 80° = 360°$$

$$10x + 80° = 360°$$

$$10x = 260°$$

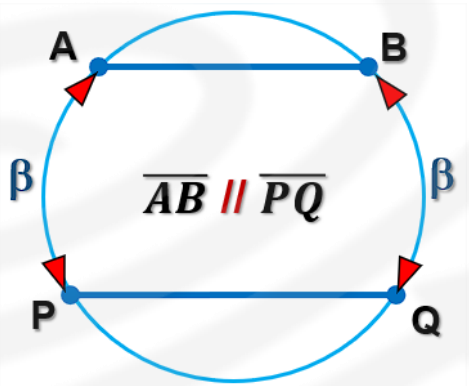
$$x = 26°$$

4. En la figura, BC//AD y $m\overset{\frown}{BC} + m\overset{\frown}{AD} = 200°$. Halle el valor de x.



RESOLUCIÓN:

- **Piden x:**



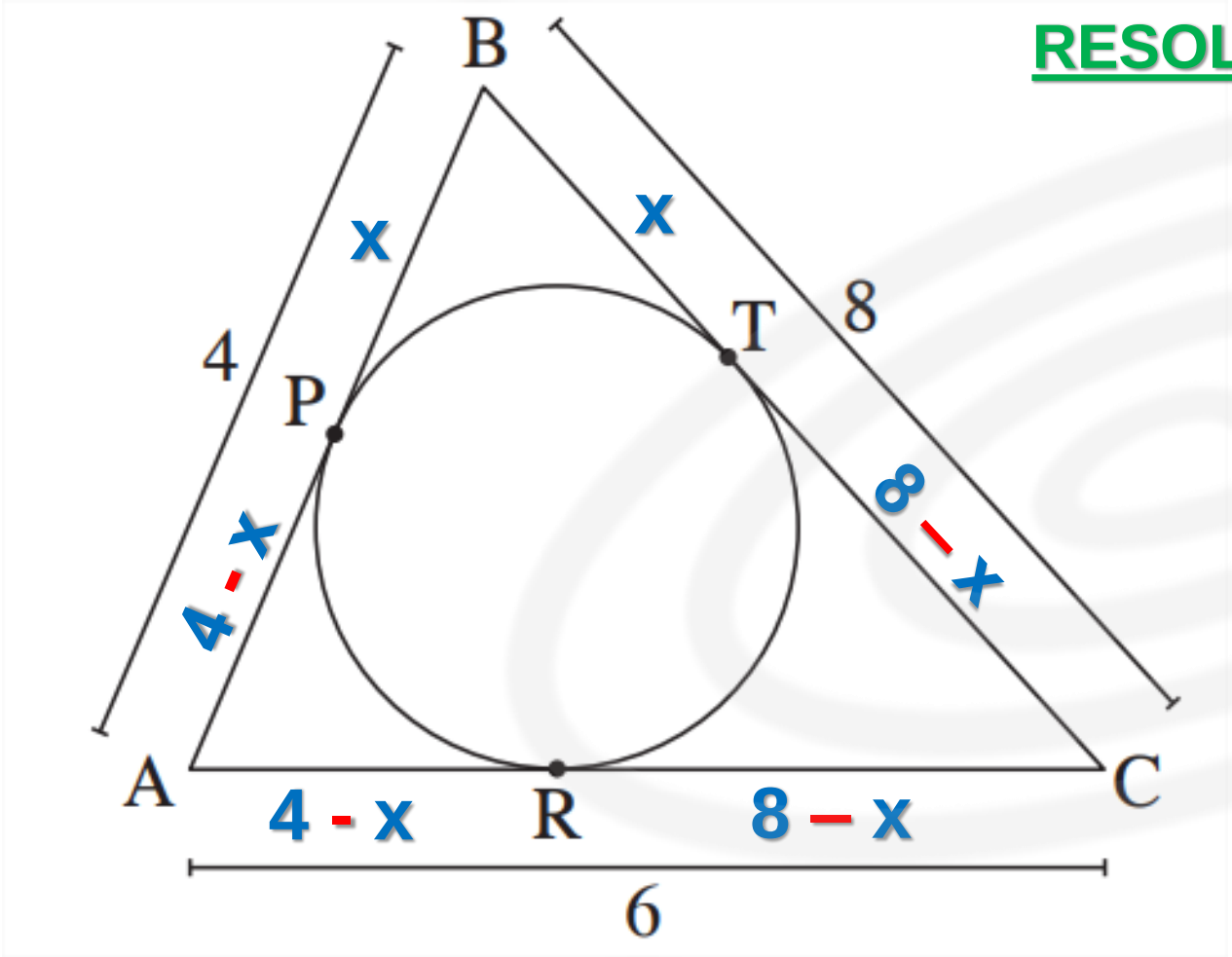
- $2x + m\overset{\frown}{BC} + m\overset{\frown}{AD} + 2x = 360°$

$2x + 200° + 2x = 360°$

$4x = 160°$

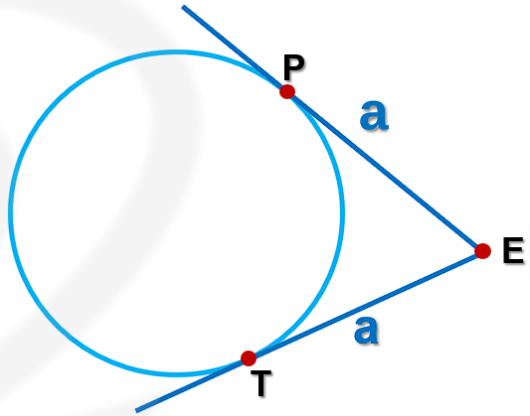
$\therefore x = 40°$

5. En la figura, P, T y R son puntos de tangencia. Halle BT.



RESOLUCIÓN:

- **Piden x:**



$$4 - x + 8 - x = 6$$

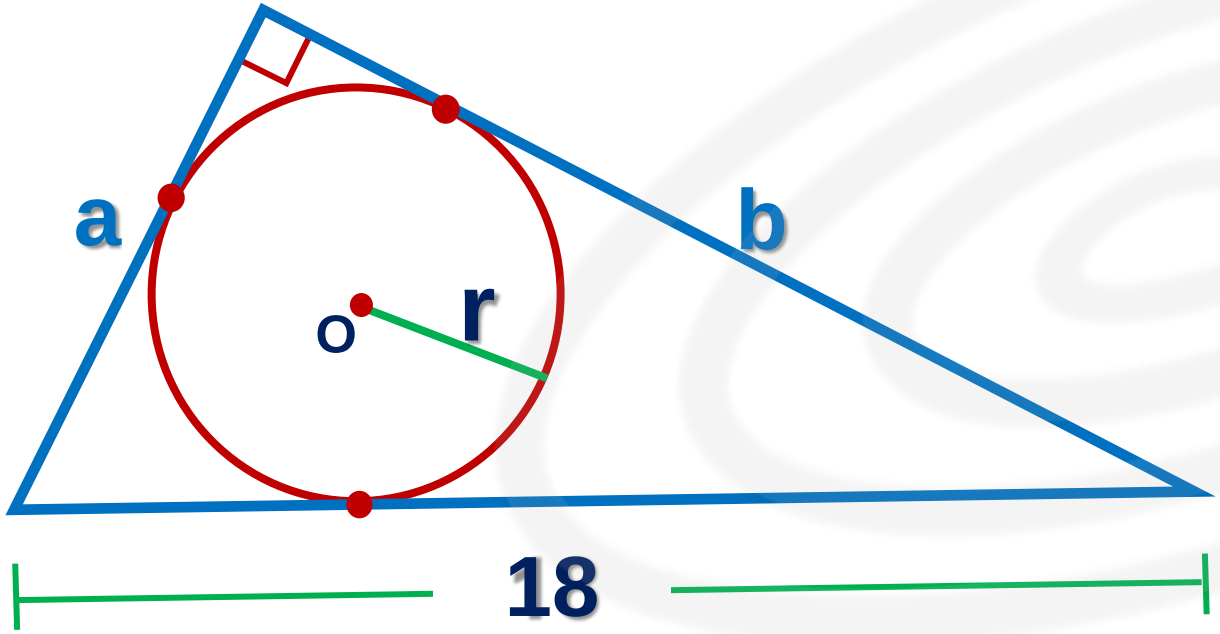
$$12 - 2x = 6$$

$$6 = 2x$$

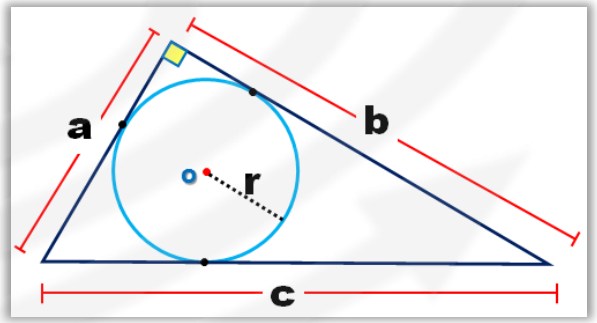
$$\boxed{x = 3}$$

6. José desea cercar para la protección de una piscina que está determinada por una circunferencia de 3 m de longitud de radio. Si los lados de la cerca toca en un punto al borde de la piscina, determine su perímetro.

RESOLUCIÓN:



- Piden $2p_{\triangle}$



Teorema de Poncelet

r: medida del inradio

$a + b = c + 2r$

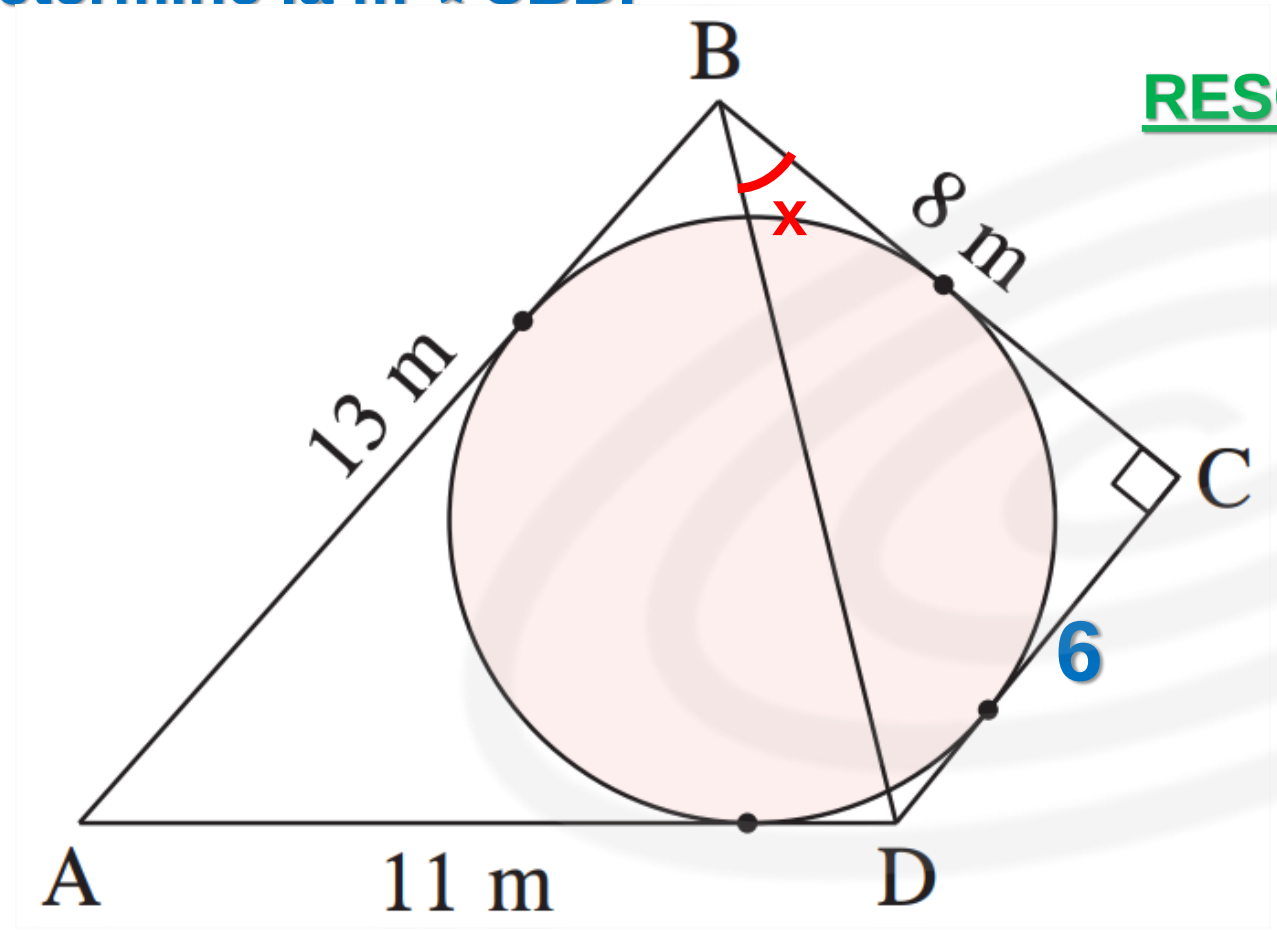
$a + b = 18 + 2(3)$

$a + b = 24$

$2p_{\triangle} = a + b + 18$

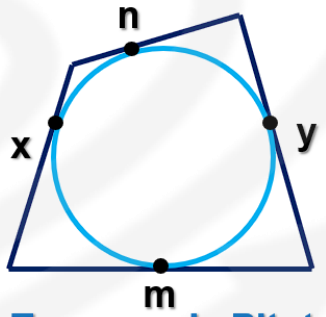
$x = 42$ m

7. Para hacer un jardín en un terreno ABCD se inscribe una circunferencia. Determine la m ∢ CBD.



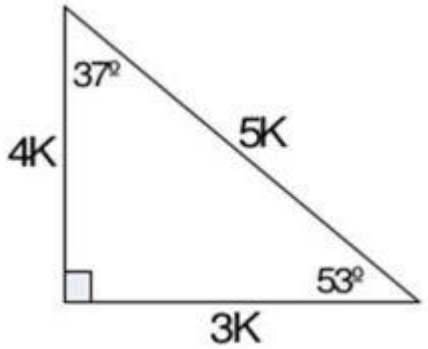
RESOLUCIÓN:

- **Piden x:**



Teorema de Pitot

$x + y = m + n$



$13 + CD = 8 + 11$

$CD = 6$

$x = 37°$