GEOMETRÍA

Tomo 5

Sesión 2

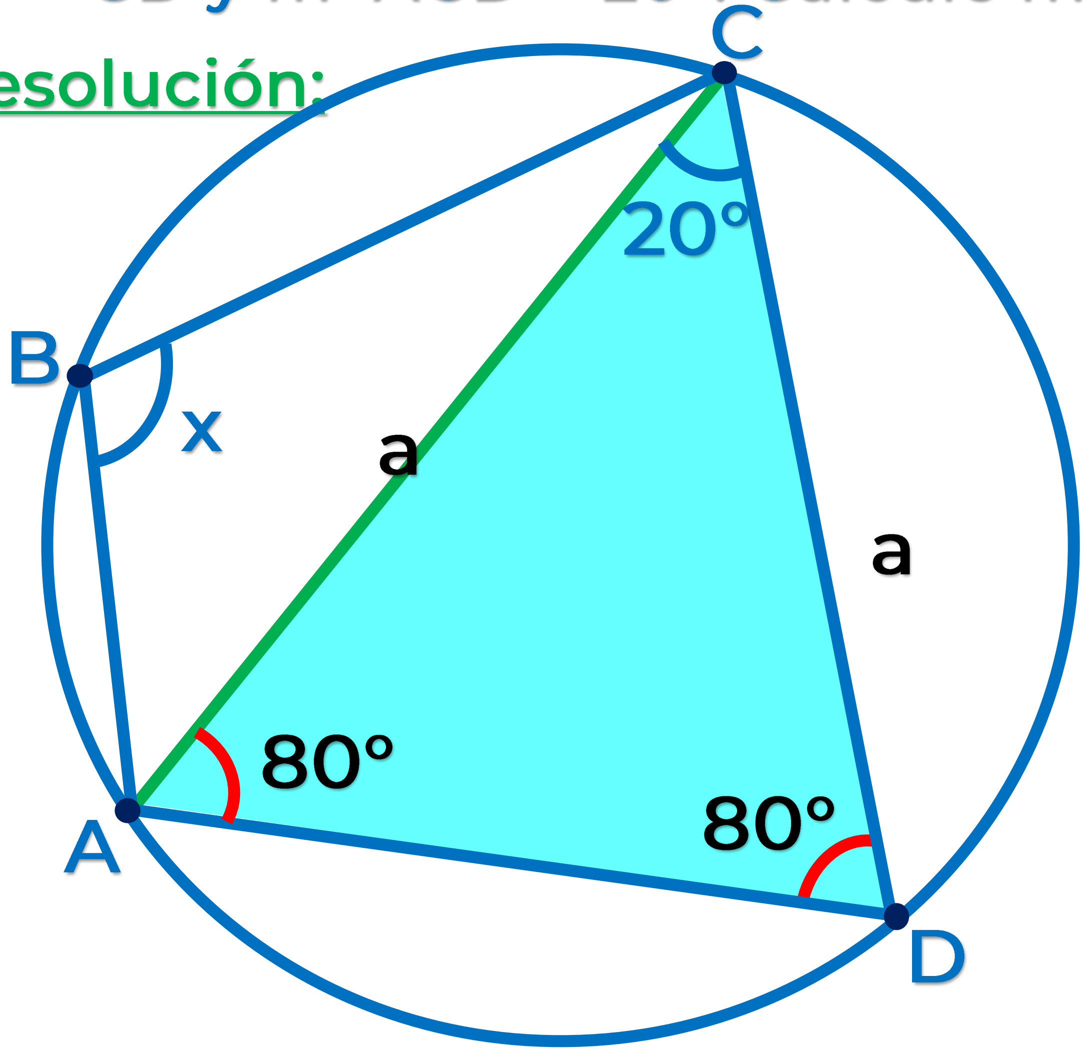
3th
SECONDARY

RETROALIMENTACIÓN

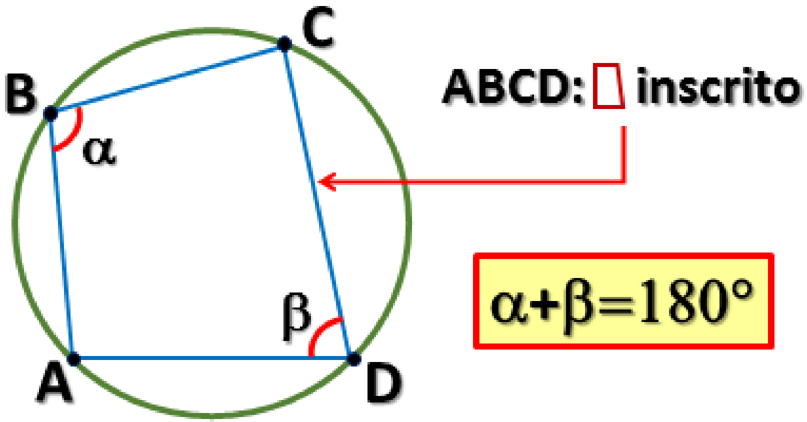
SACO OLIVEROS

1. En una circunferencia se inscribe un cuadrilátero ABCD, tal que AC = CD y m<ACD = 20°. Calcule m<ABC.

Resolución:



- Nos piden x.
- $\triangle$ ACD: Isósceles
- ABCD: ⏢ Inscrito



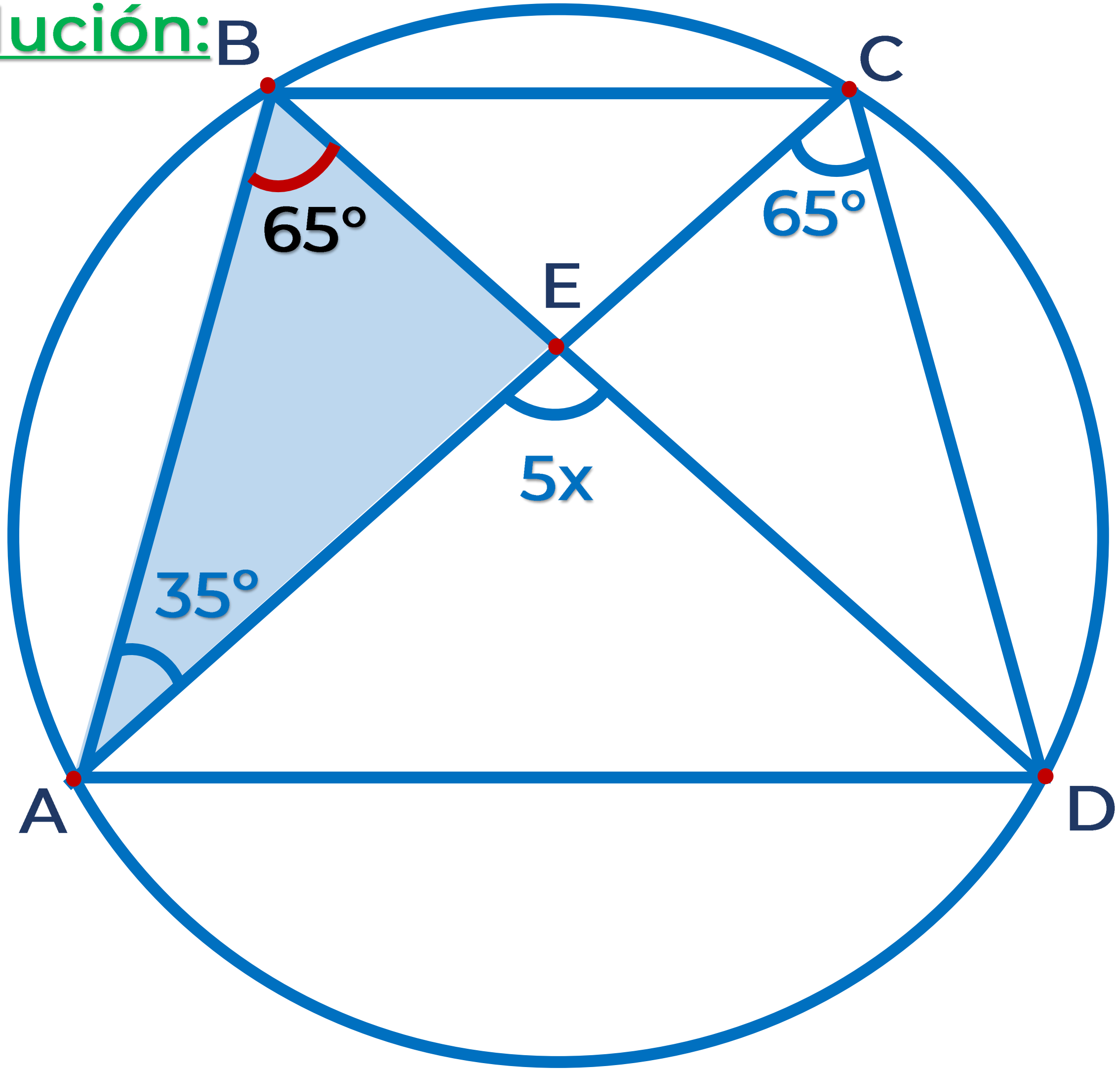
$\alpha+\beta=180°$

$x + 80° = 180°$

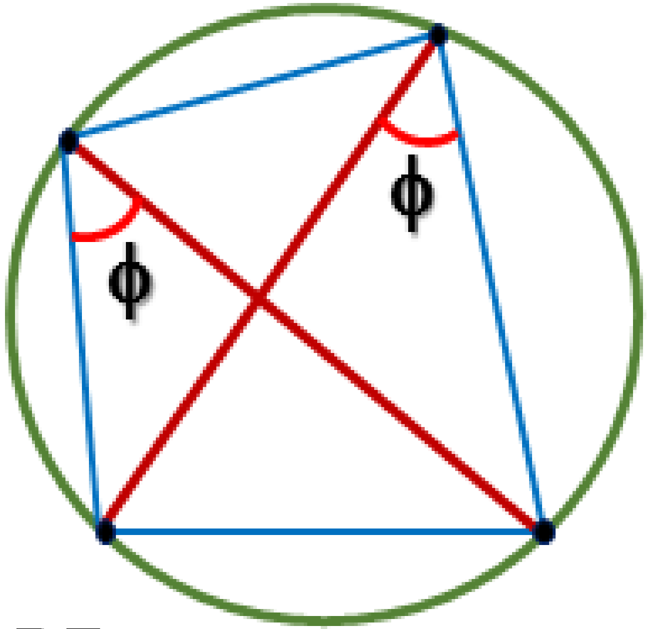
$x = 100°$

2. Del gráfico, calcule x.

Resolución:



- Nos piden x.
- ABCD : Inscrito



- △ ABE :

$$5x = 35° + 65°$$

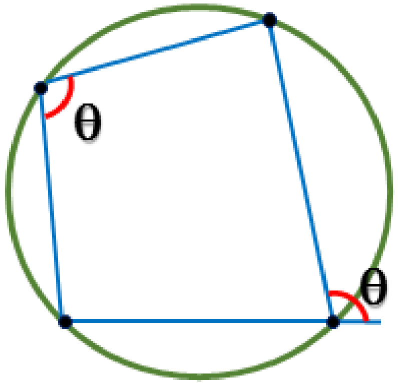
$$5x = 100°$$

$$\boxed{x = 20°}$$

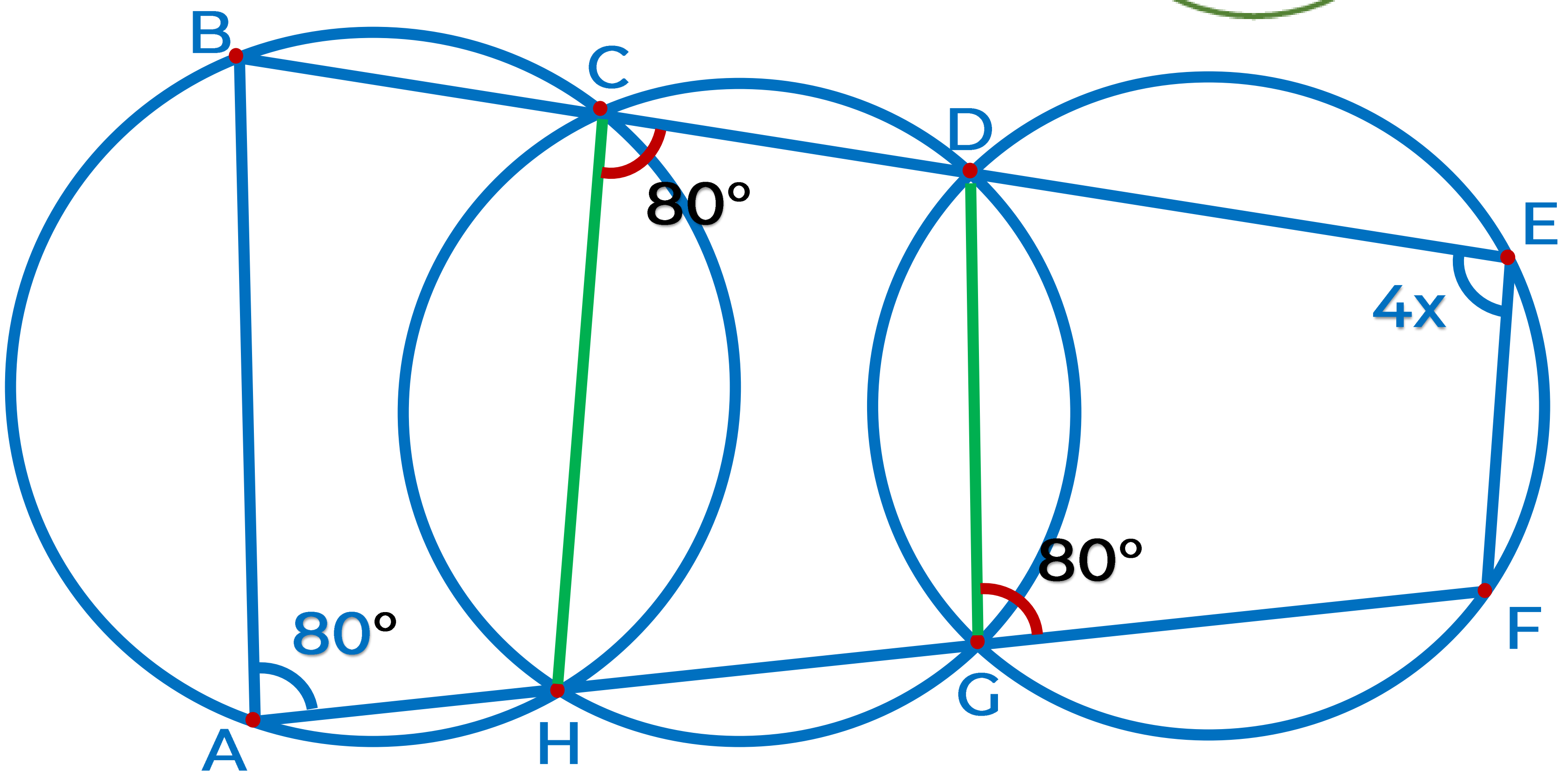
3. Del gráfico, calcule X.

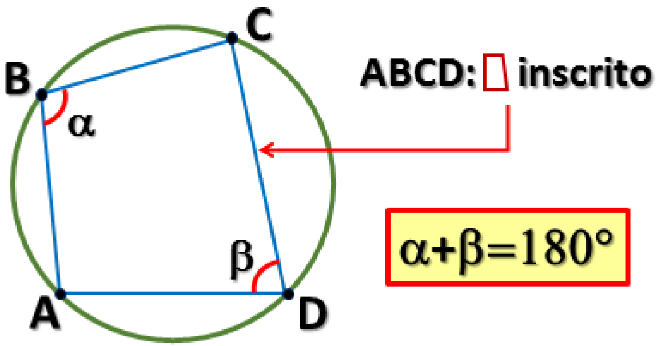
Resolución:

- Se traza $\overline{CH}$.
- ABCH : Inscrito



- Se traza $\overline{DG}$.
- CDGH : Inscrito
- DEFG : Inscrito





$\alpha+\beta=180°$

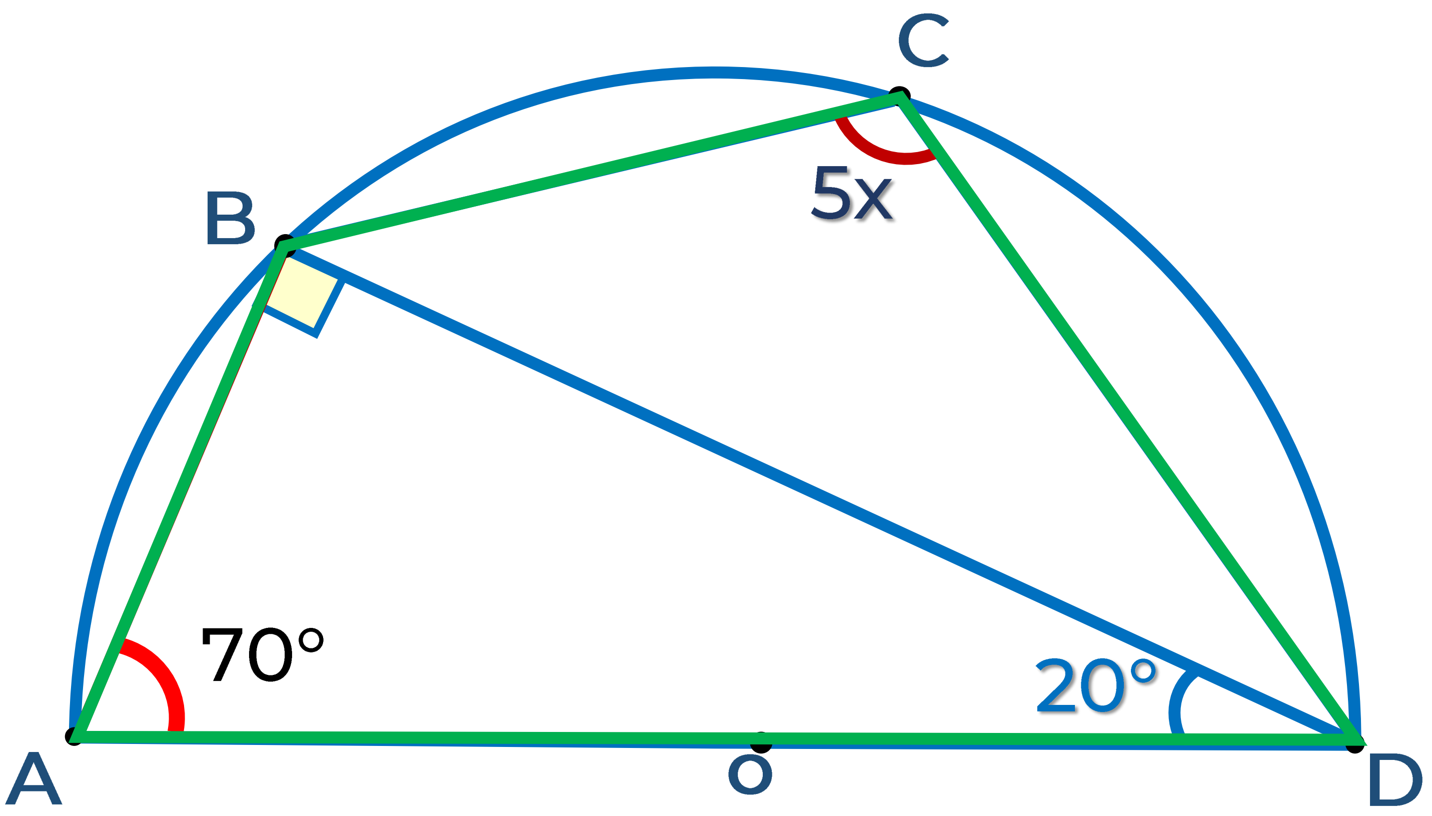
$80° + 4x = 180°$

$4x = 100°$

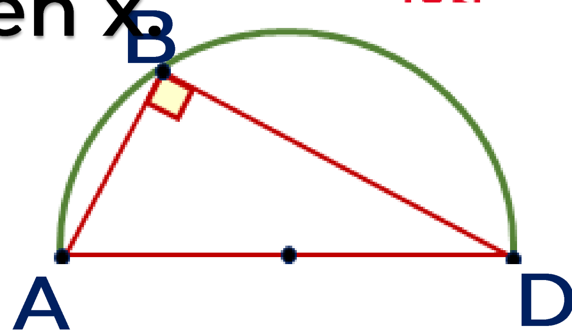
$\boxed{x = 25°}$

4. En la figura O es centro, calcule x.

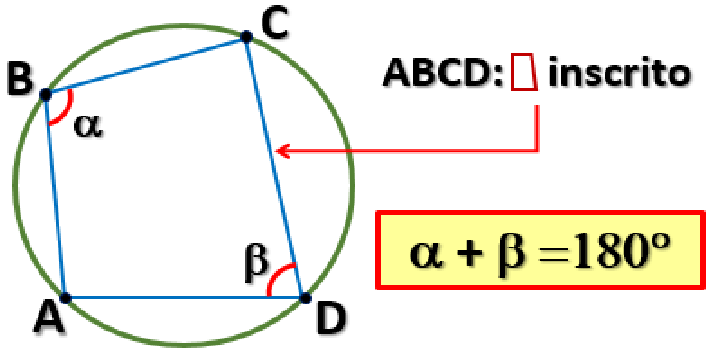
Resolución:



- Nos piden x
- Se traza $\overline{AB}$.



- ◺ABD
- ABCD : ▱ Inscrito

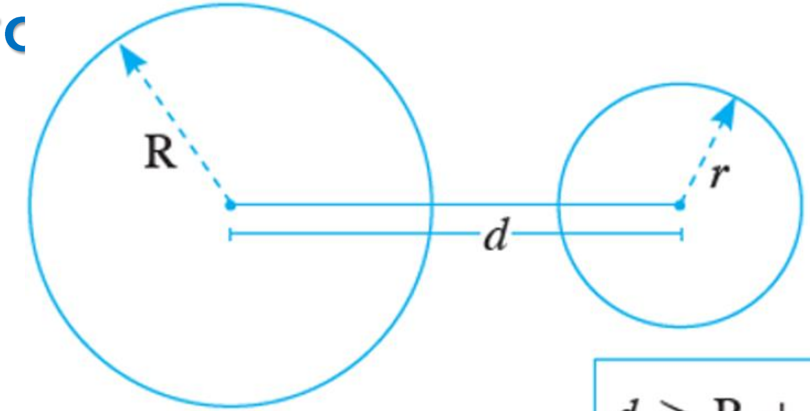


$$5x + 70° = 180°$$

$$5x = 110°$$

$$\boxed{x = 22°}$$

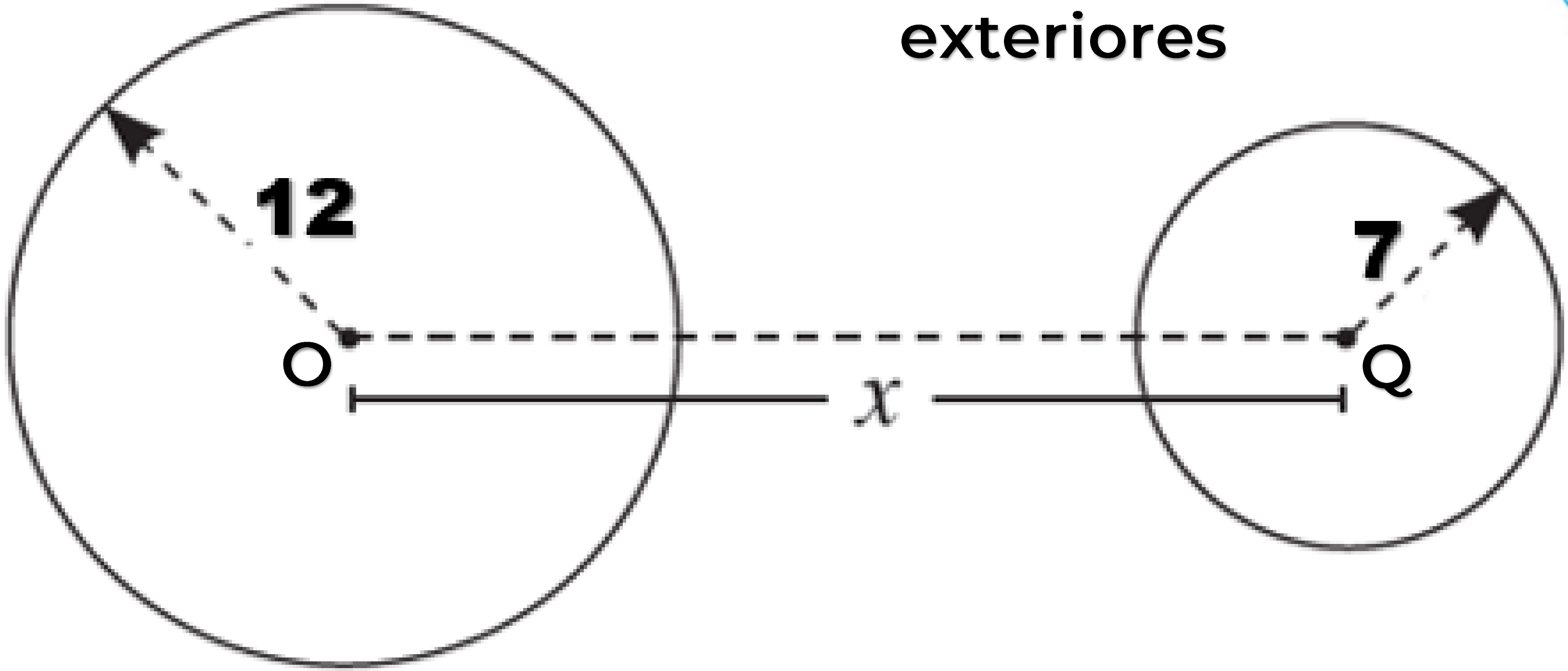
5. En la figura, O y Q son centros de las circunferencias mostradas, calcule el mínimo valor enterc



$\boxed{d > R + r}$

Resolución:

- Nos piden xmin.
- Circunferencias exteriores



- Del gráfico

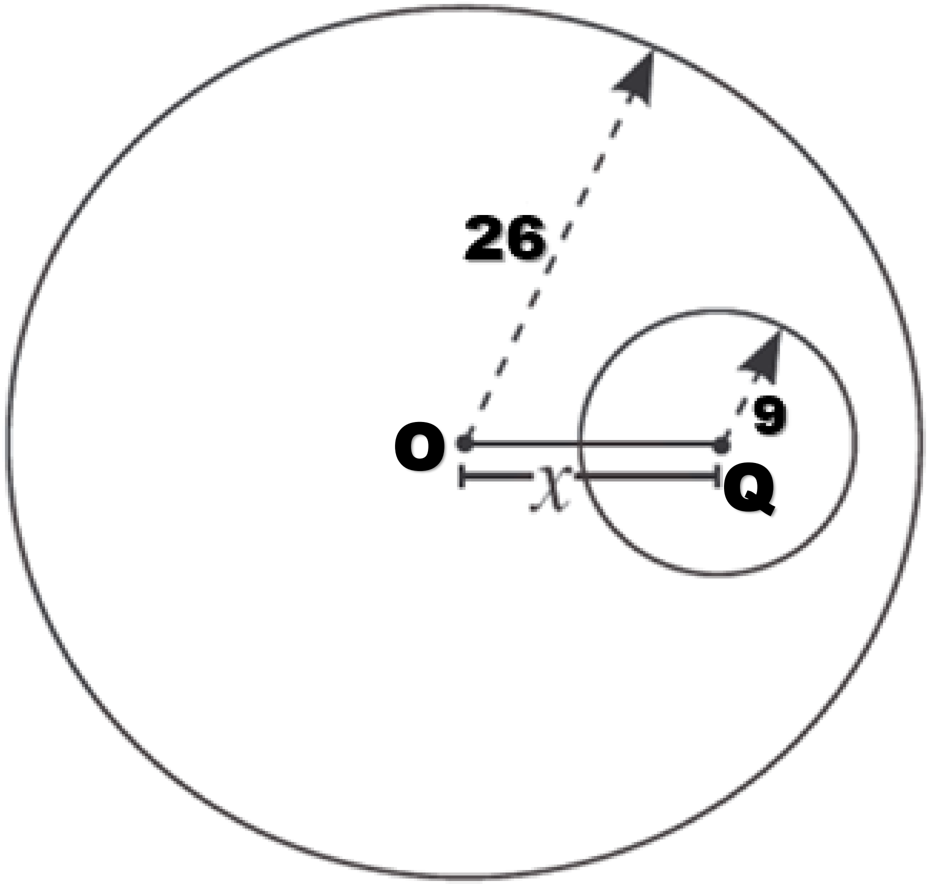
$x > 12 + 7$

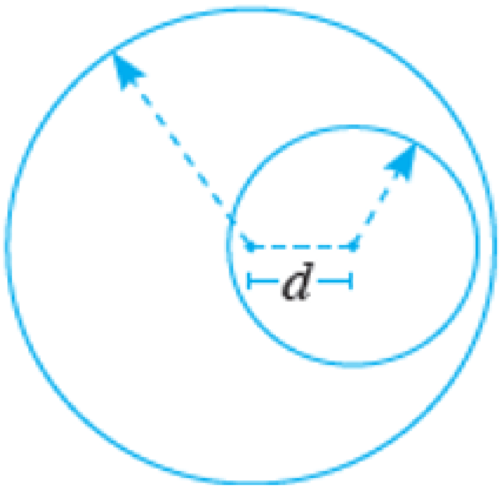
$x > 19$

$\boxed{x_{mín} = 20}$

6. En la figura, O y Q son centros de las circunferencias mostradas, calcule el máximo valor entero que puede tomar x.

Resolución:





- Nos piden xmáx.
- Circunferencias interiores

Se cumple que

$$\boxed{d < R - r}$$

- Del gráfico

$$x < 26 - 9$$

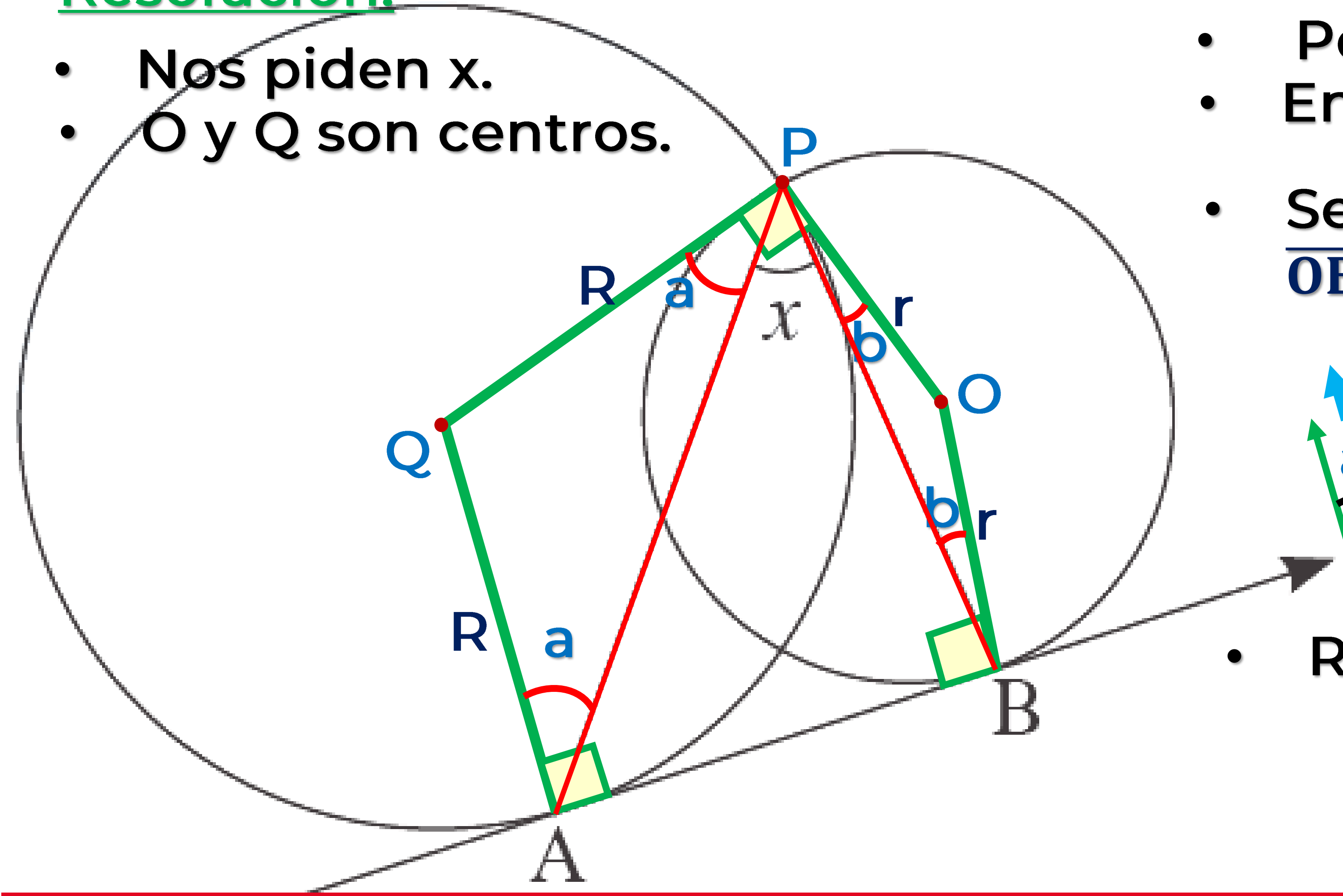
$$x < 17$$

$$\boxed{x_{máx} = 16}$$

7. Calcule x, si las circunferencias son ortogonales, además A y B son puntos de tangencia.

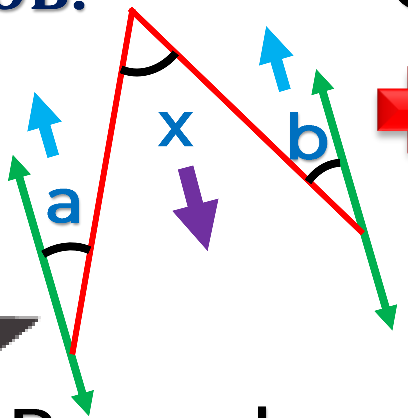
Resolución:

- Nos piden x.
- O y Q son centros.



- Se trazan: $\overline{QP}$ y $\overline{OP}$.
- Por circunferencias son ortogo
- En P: $a + b + x = 90°$ .... (I)
- Se trazan: $\overline{QA}$ y $\overline{OB}$.

Como $\overline{AQ} // \overline{BO}$



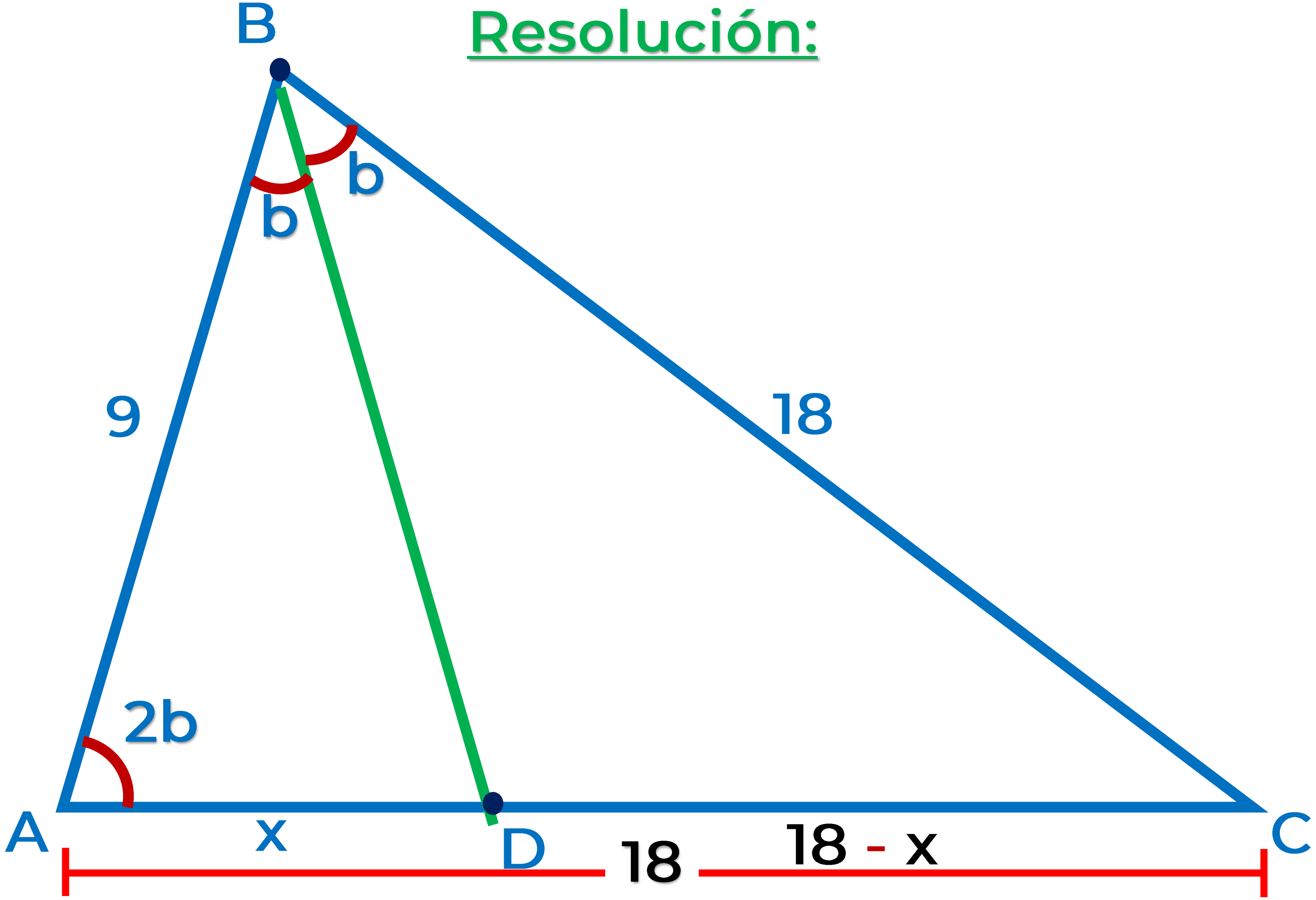
$a + b = x$ ......(II)

- Reemplazamos (II) en (I)

$$\underbrace{a + b}_{x} + x = 90°$$

$$\boxed{x = 45°}$$

8. En un triángulo ABC, se traza la bisectriz interior $\overline{BD}$. AB = 9, BC = 18 y m<BAC = m<ABC. Calcule AD.

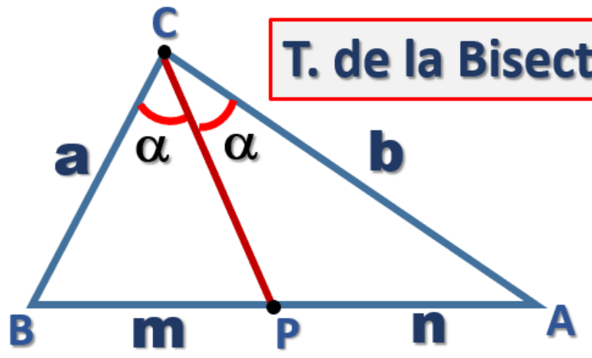


Resolución:

- Nos piden x.
- △ ABC : Isósceles

  BC = AC = 18

- T. de la Bisectriz Interior



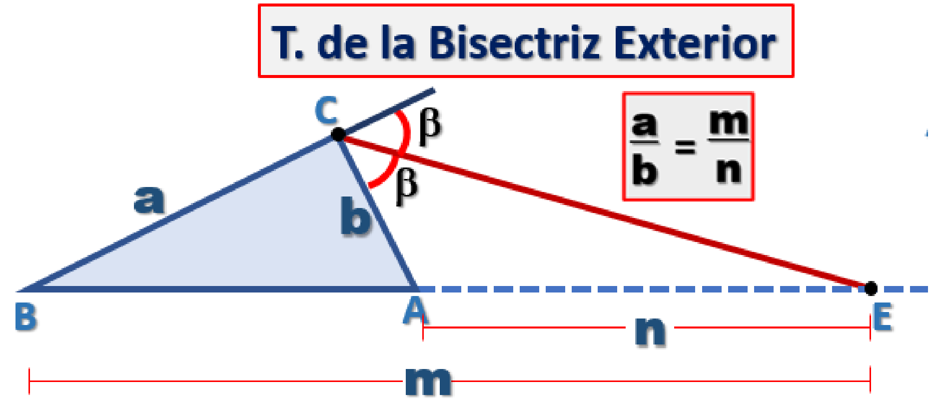
$$\frac{a}{b} = \frac{m}{n}$$

$$\frac{\cancel{9}^{\,1}}{\cancel{18}_{\,2}} = \frac{x}{18 - x}$$

$$18 - x = 2x$$

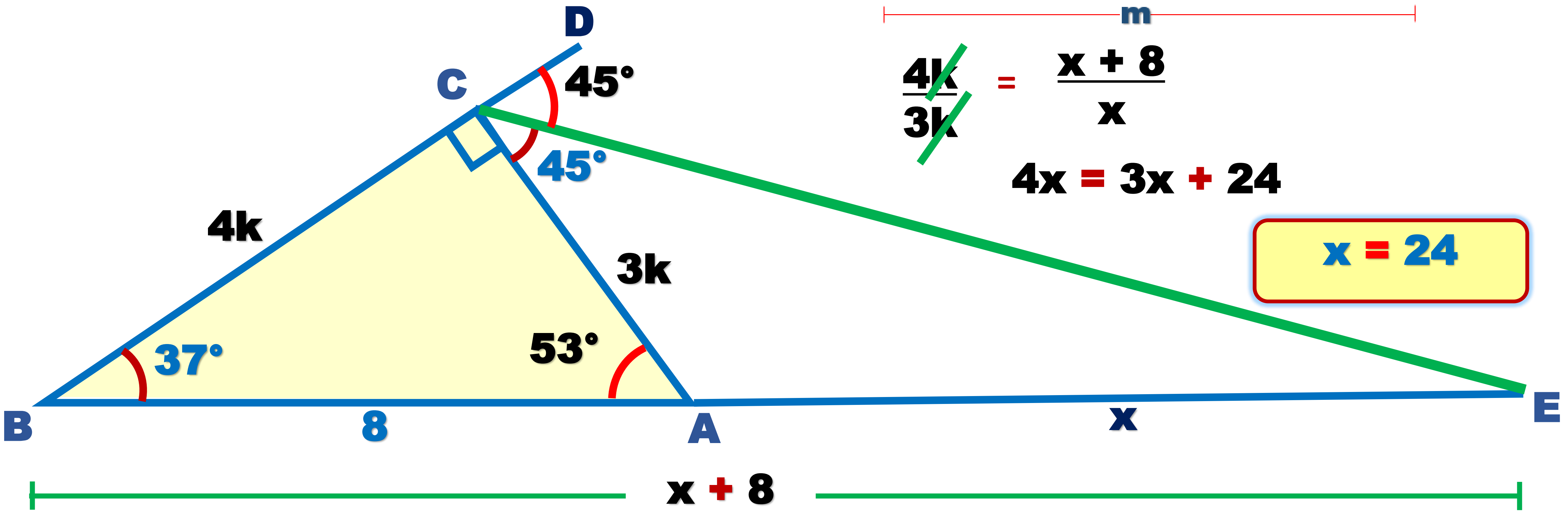
$$18 = 3x \qquad \boxed{6 = x}$$

9. Del gráfico, AB=8, calcule AE.



Resolución:

- Nos piden x.
- $\overline{CE}$: bisectriz exterior.



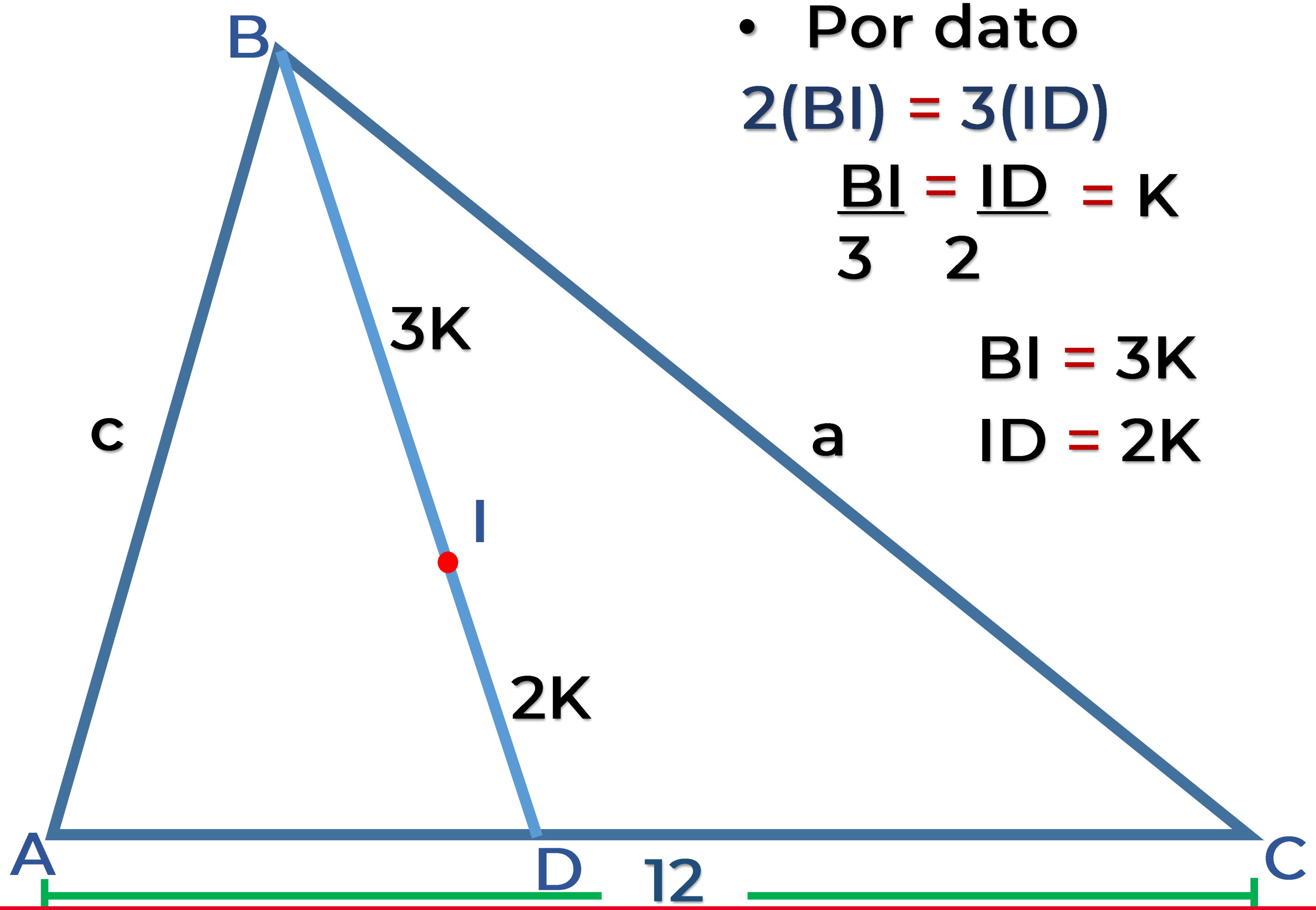
$$\frac{4\cancel{k}}{3\cancel{k}} = \frac{x+8}{x}$$

$$4x = 3x + 24$$

$$\boxed{x = 24}$$

10. En la figura, I es incentro del triángulo ABC, 2(BI) = 3(ID) y AC = 12 u. Calcule el perímetro de la región triangular ABC.

Resolución:



- Por dato

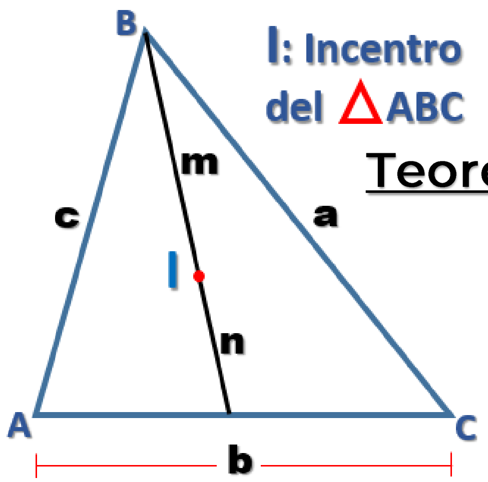
$2(BI) = 3(ID)$

$\frac{BI}{3} = \frac{ID}{2} = K$

$BI = 3K$

$ID = 2K$

- Nos piden 2p(ABC)



I: Incentro del $\triangle$ABC

Teorema del Incentro

$$\boxed{\frac{m}{n} = \frac{a+c}{b}}$$

$$\frac{3\cancel{k}}{2\cancel{k}} = \frac{a+c}{12}$$

$18 = a + c$

- Reemplazand

$$2p_{(ABC)} = \underbrace{a + c}_{18} + 12$$

$$\boxed{2p_{(ABC)} = 30\ u}$$