



GEOMETRÍA

Capítulo 13 SESIÓN II

3th
SECONDARY

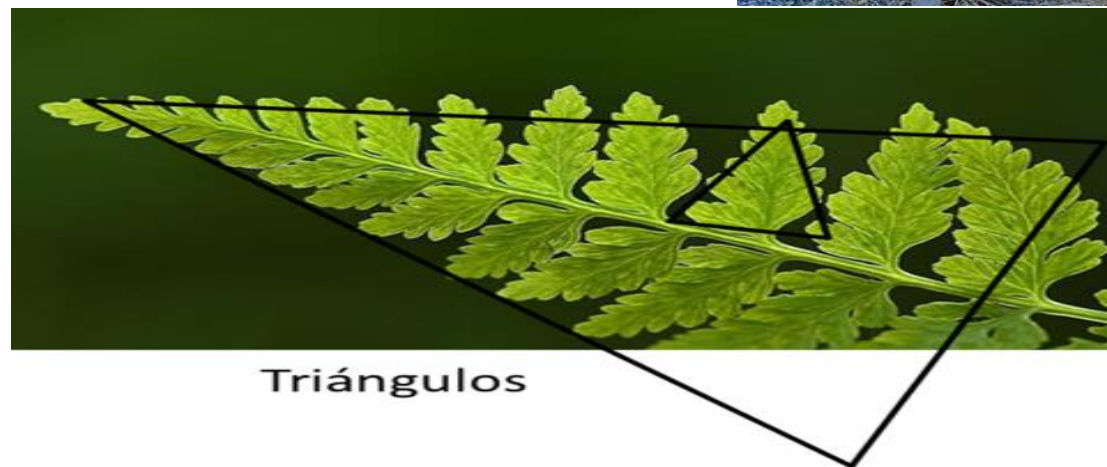
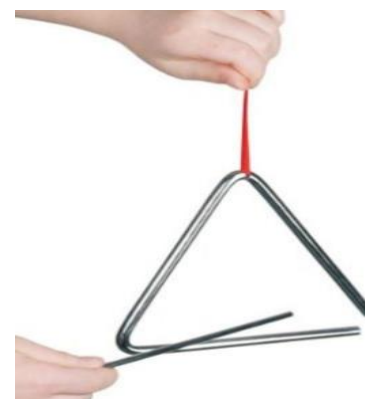
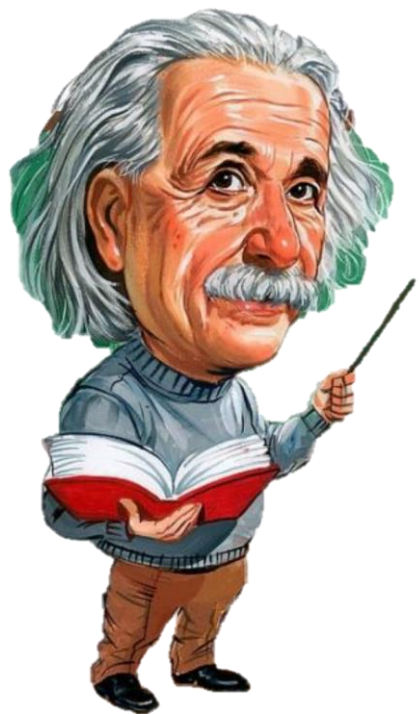
CIRCUNFERENCIA II



 **SACO OLIVEROS**



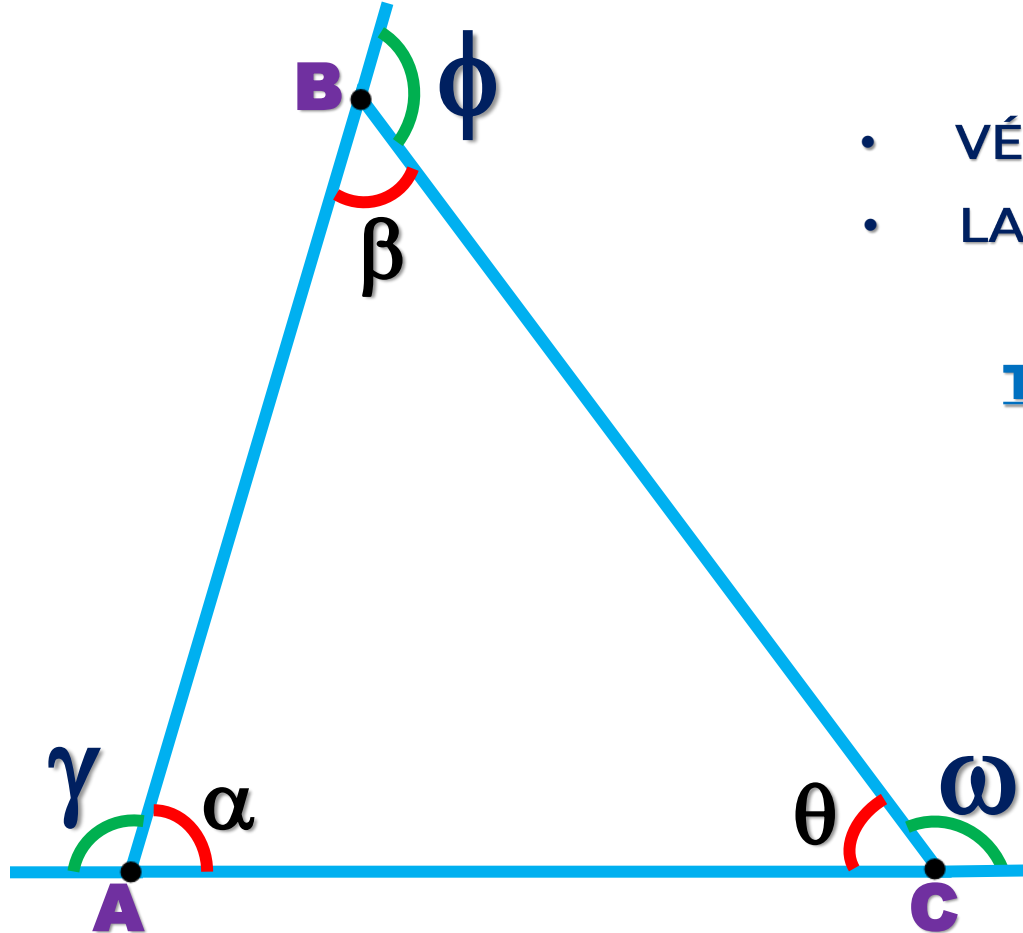
El triángulo es una de las figuras geométricas elementales y, por lo tanto, el conocimiento de sus teoremas, clases, etc., es básico para comprender mejor a las demás figuras geométricas que estudiaremos posteriormente. Esta figura tiene en la actualidad diferentes usos y aplicaciones como podemos observar.



Triángulos



Definición: Es aquella figura geométrica formada al unir 3 puntos no colineales mediante segmento de recta.



- VÉRTICES : A, B y C
- LADOS : \overline{AB} , \overline{BC} y \overline{AC}

TEOREMAS

$$\alpha + \beta + \theta = 180^\circ$$

$$\omega + \phi + \gamma = 360^\circ$$

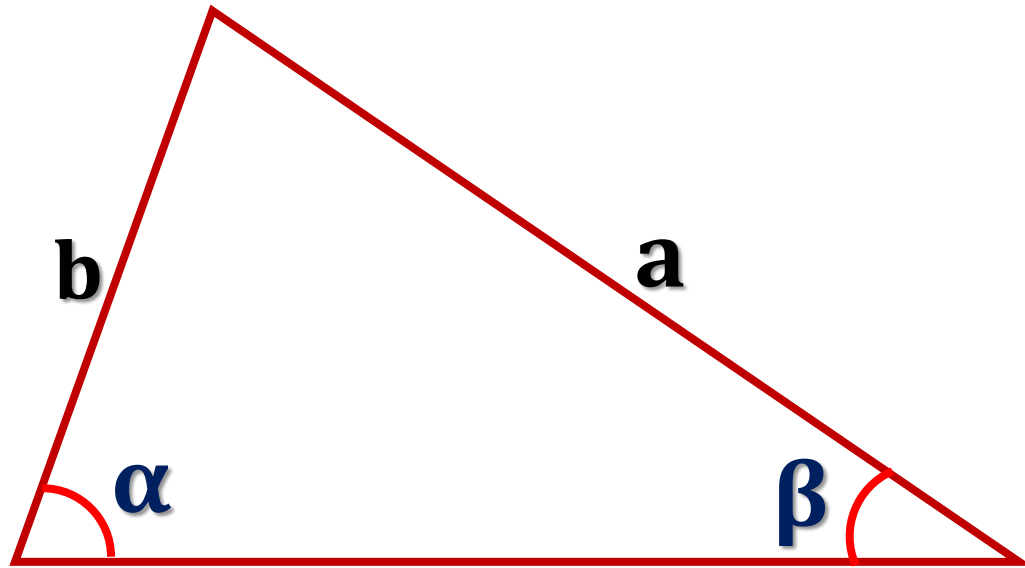
$$\omega = \alpha + \beta$$

$$\phi = \alpha + \theta$$

$$\gamma = \beta + \theta$$



- **Teorema de la correspondencia**

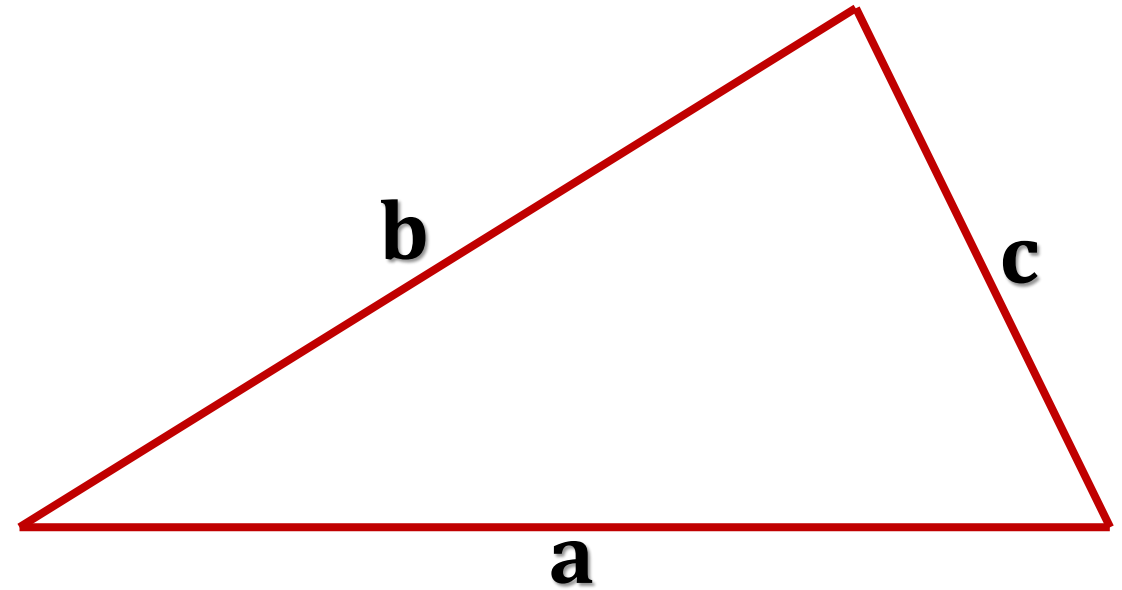


Si: $\beta < \alpha$



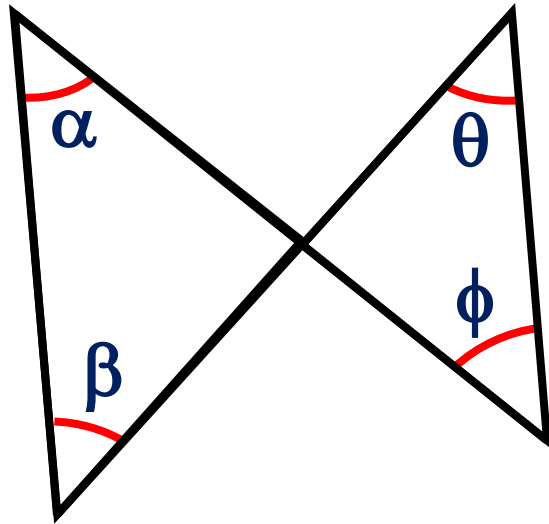
$$b < a$$

- **Teorema de la existencia**

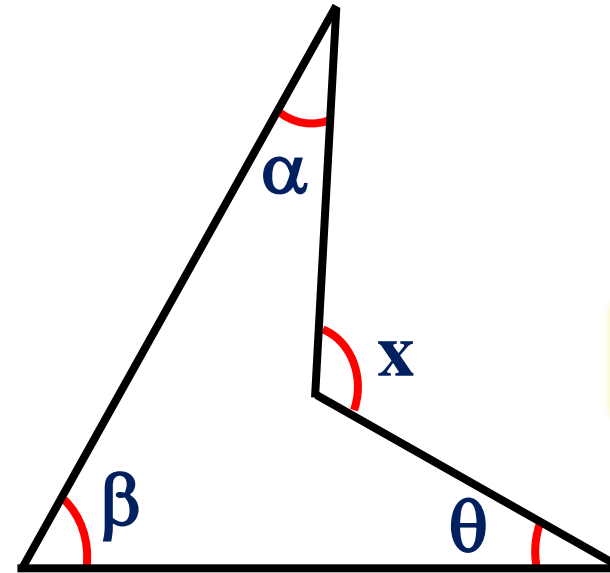


donde: $c < b < a$

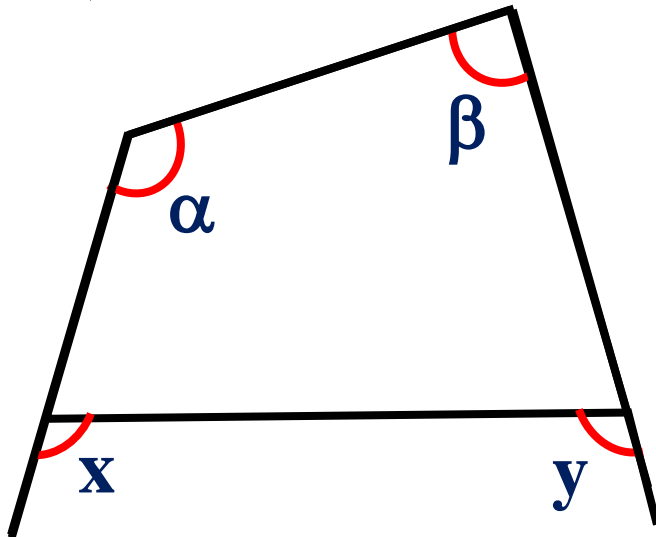
$$b - c < a < b + c$$



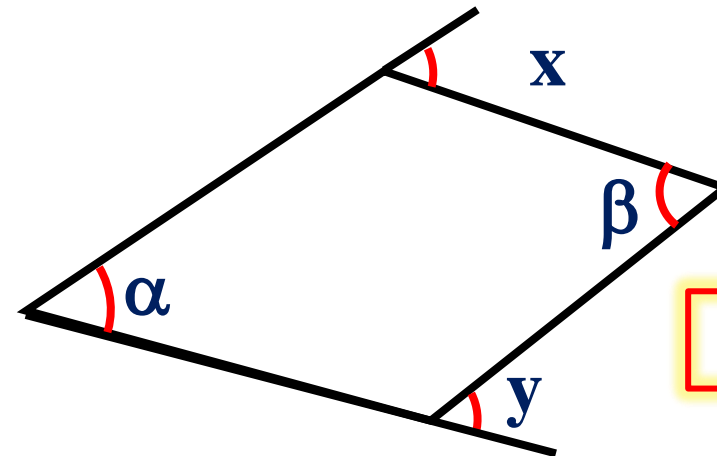
$$\alpha + \beta = \theta + \phi$$



$$x = \alpha + \beta + \theta$$



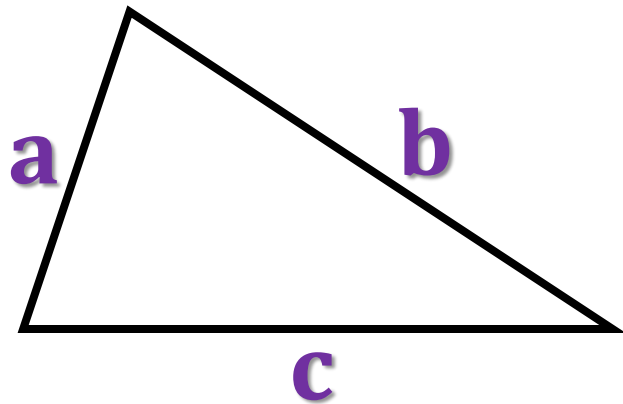
$$x + y = \alpha + \beta$$



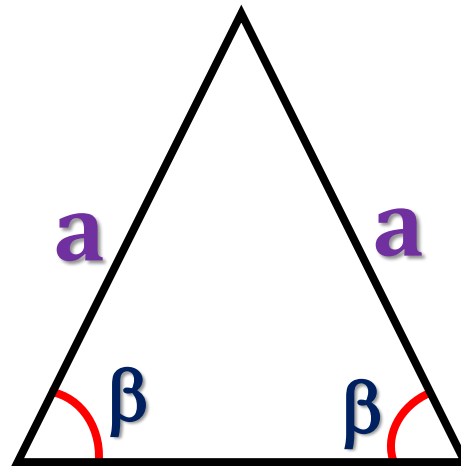
$$x + y = \alpha + \beta$$

Clasificación

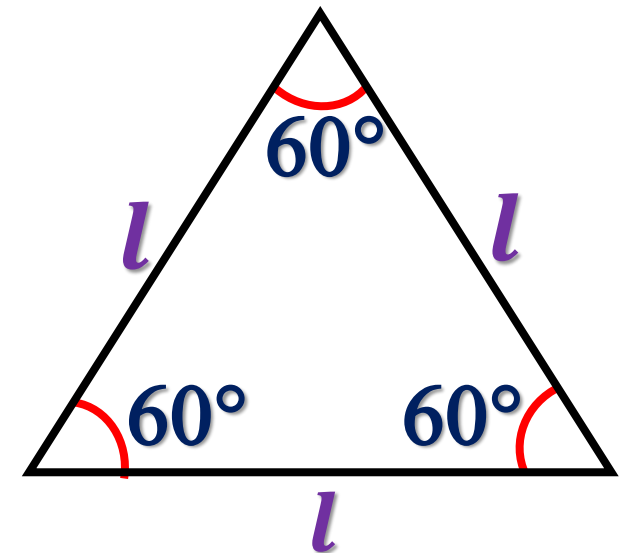
1. Según las medidas de los lados.



Δ Escaleno



Δ Isósceles

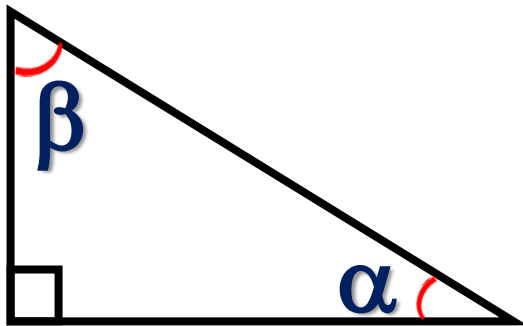


Δ Equilátero



2. Clasificación según las medidas de sus ángulos.

Δ Rectángulo



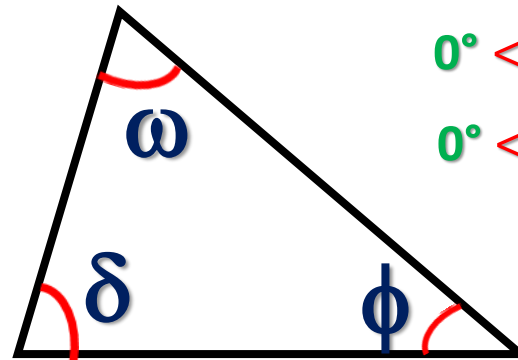
$$\alpha + \beta = 90^\circ$$

Δ Oblicuángulo

$$0^\circ < \omega < 90^\circ$$

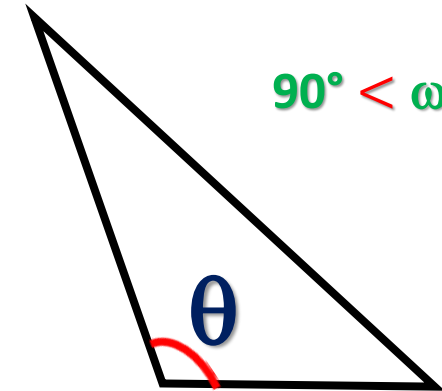
$$0^\circ < \delta < 90^\circ$$

$$0^\circ < \phi < 90^\circ$$



Δ Acutángulo

$$90^\circ < \omega < 180^\circ$$

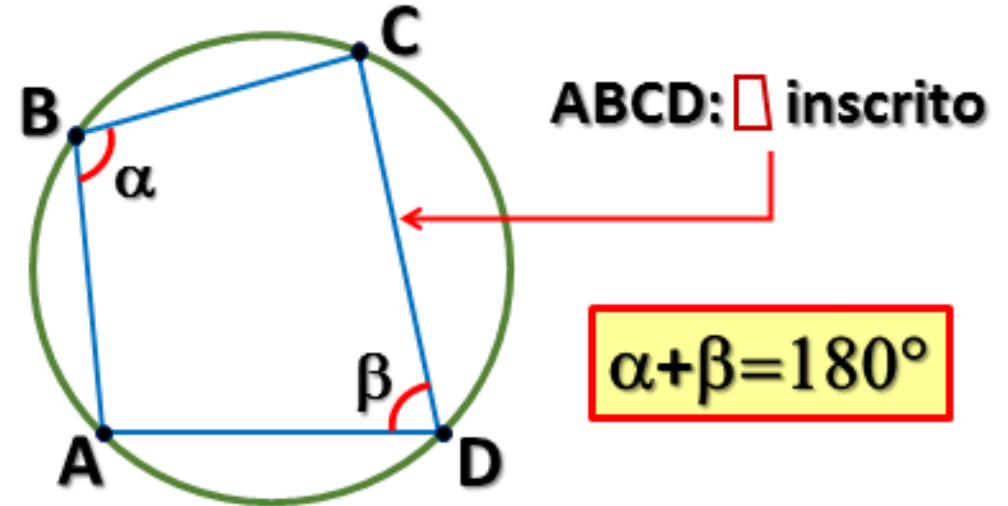
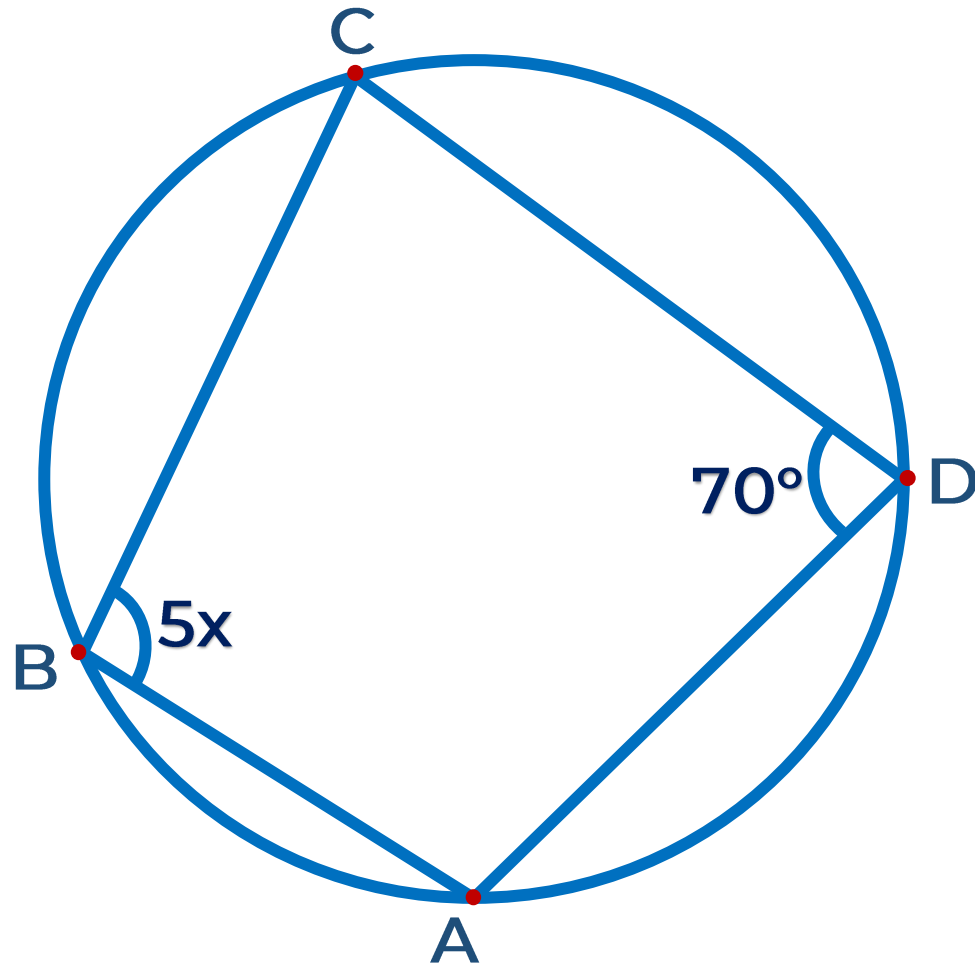


Δ Obtusángulo



1. Del gráfico, halle el valor de x .

Resolución



$$5x + 70^\circ = 180^\circ$$

$$5x = 110^\circ$$

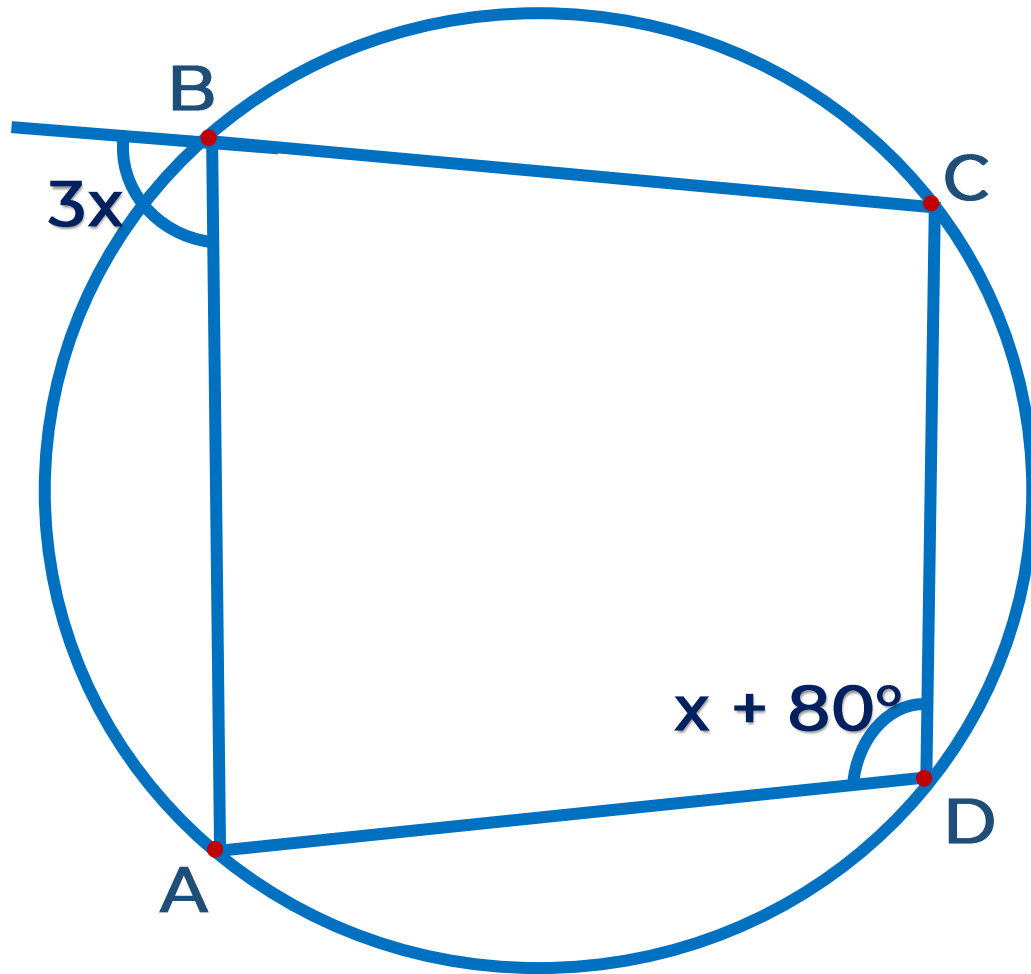
$$x =$$

$$22^\circ$$

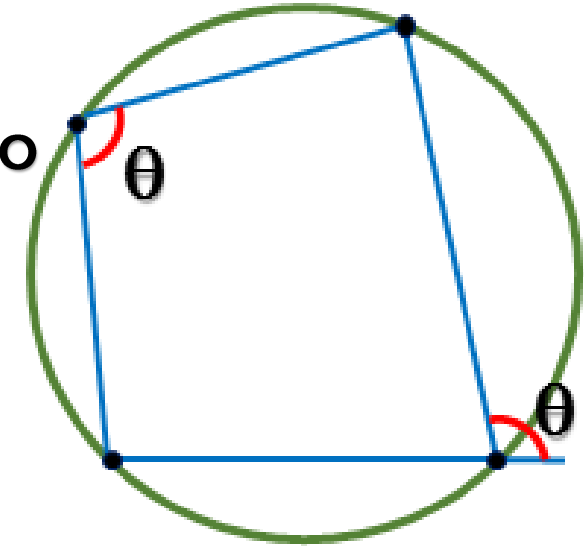


2. Del gráfico, halle el valor de x .

Resolución



ABCD :  Inscrito



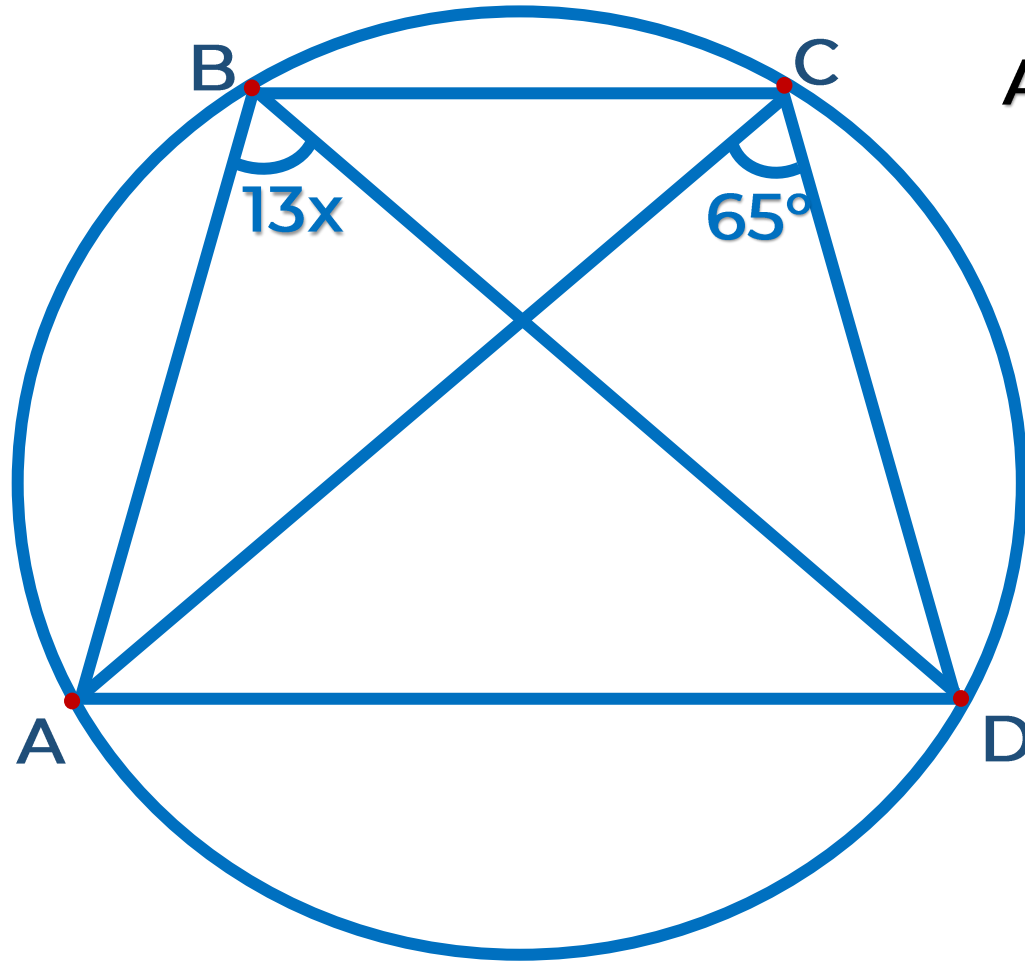
$$3x = x + 80^\circ$$

$$2x = 80^\circ$$

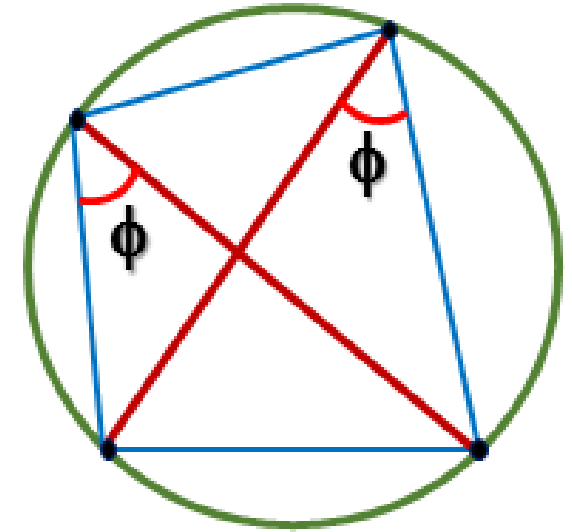
$$x = 40^\circ$$

3. Del gráfico, halle el valor de x .

Resolución



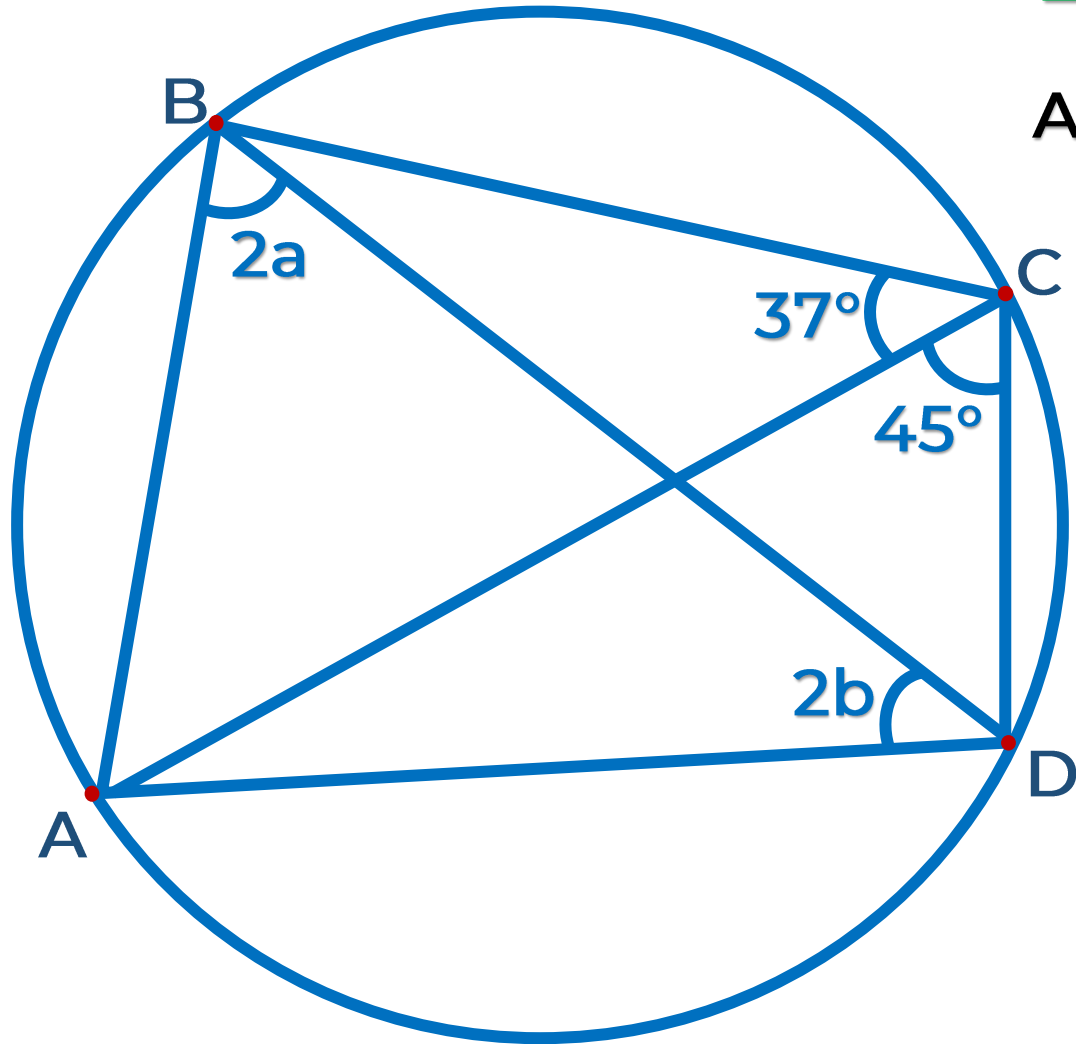
ABCD : ◻ Inscrito



$$13x = 65^\circ$$

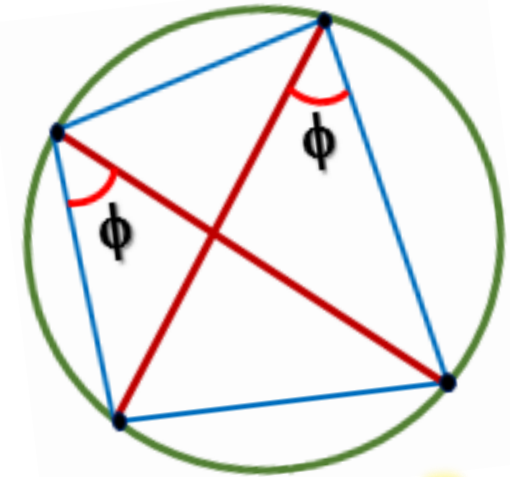
$$x = 40^\circ$$

4. Del gráfico, calcule $a + b$



Resolución

ABCD Inscrito



$$2a = 45^\circ$$

$$2b = 37^\circ$$

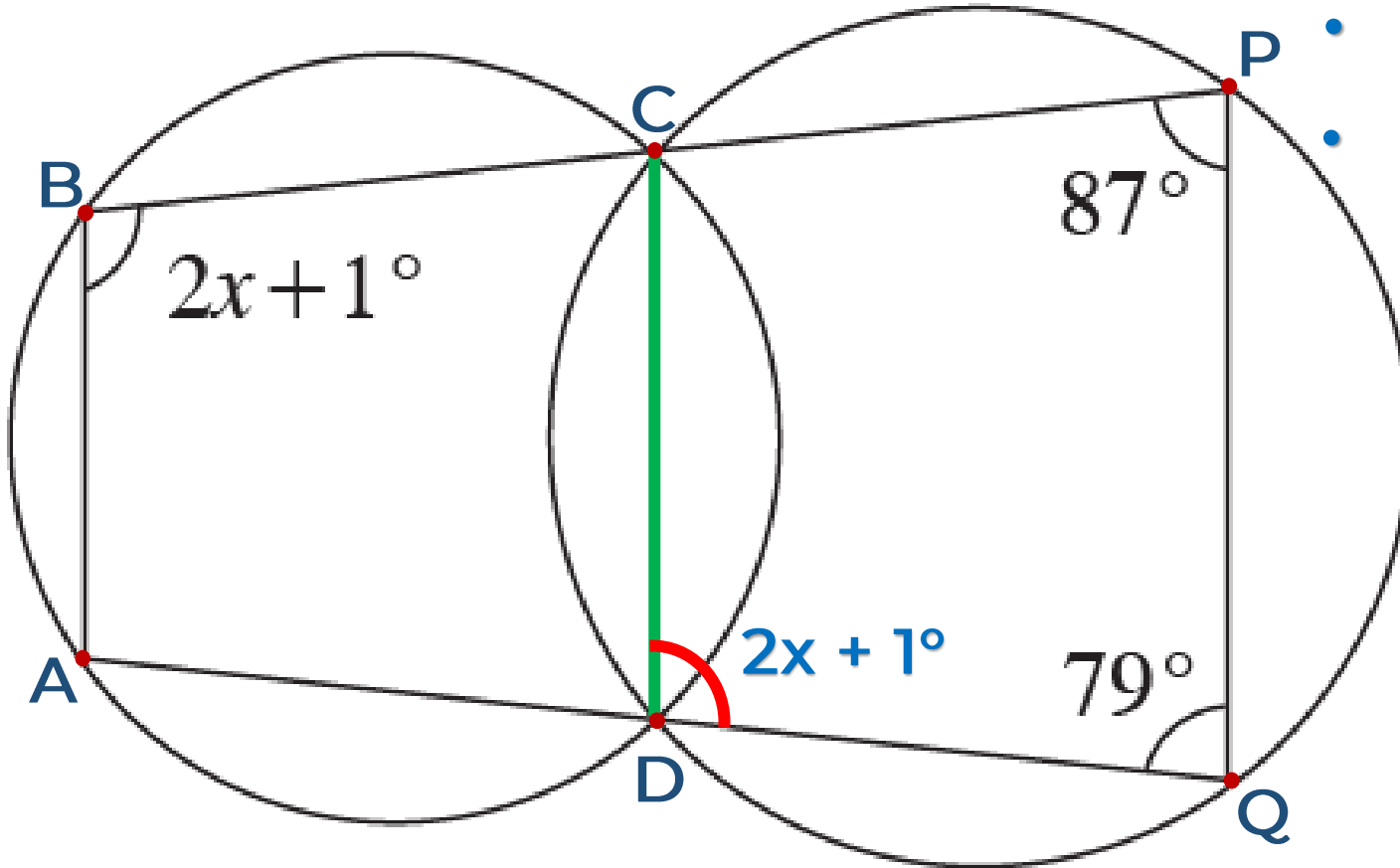
$$\hline \cancel{2a} + \cancel{2b} = \cancel{82^\circ}$$

$$a + b =$$

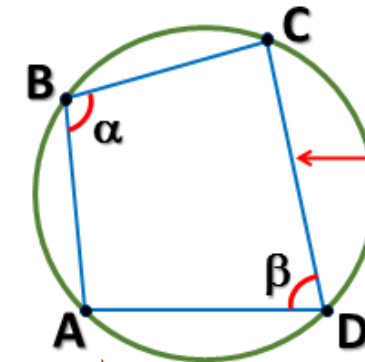
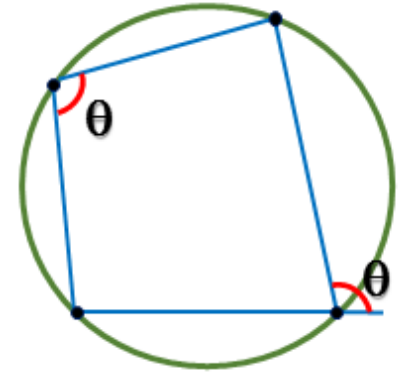
$$41^\circ$$

5. Del gráfico, halle el valor de x .

Resolución



- $ABCD$: Inscrito.
- $CPQD$: Inscrito.



$ABCD$: inscrito

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

$$\rightarrow 2x + 1^\circ + 87^\circ = 180^\circ$$

$$2x + 88^\circ = 180^\circ$$

$$2x = 92^\circ$$

$$x =$$

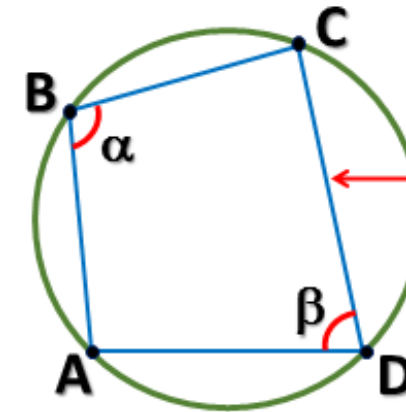
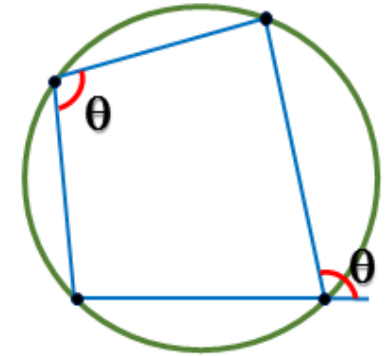
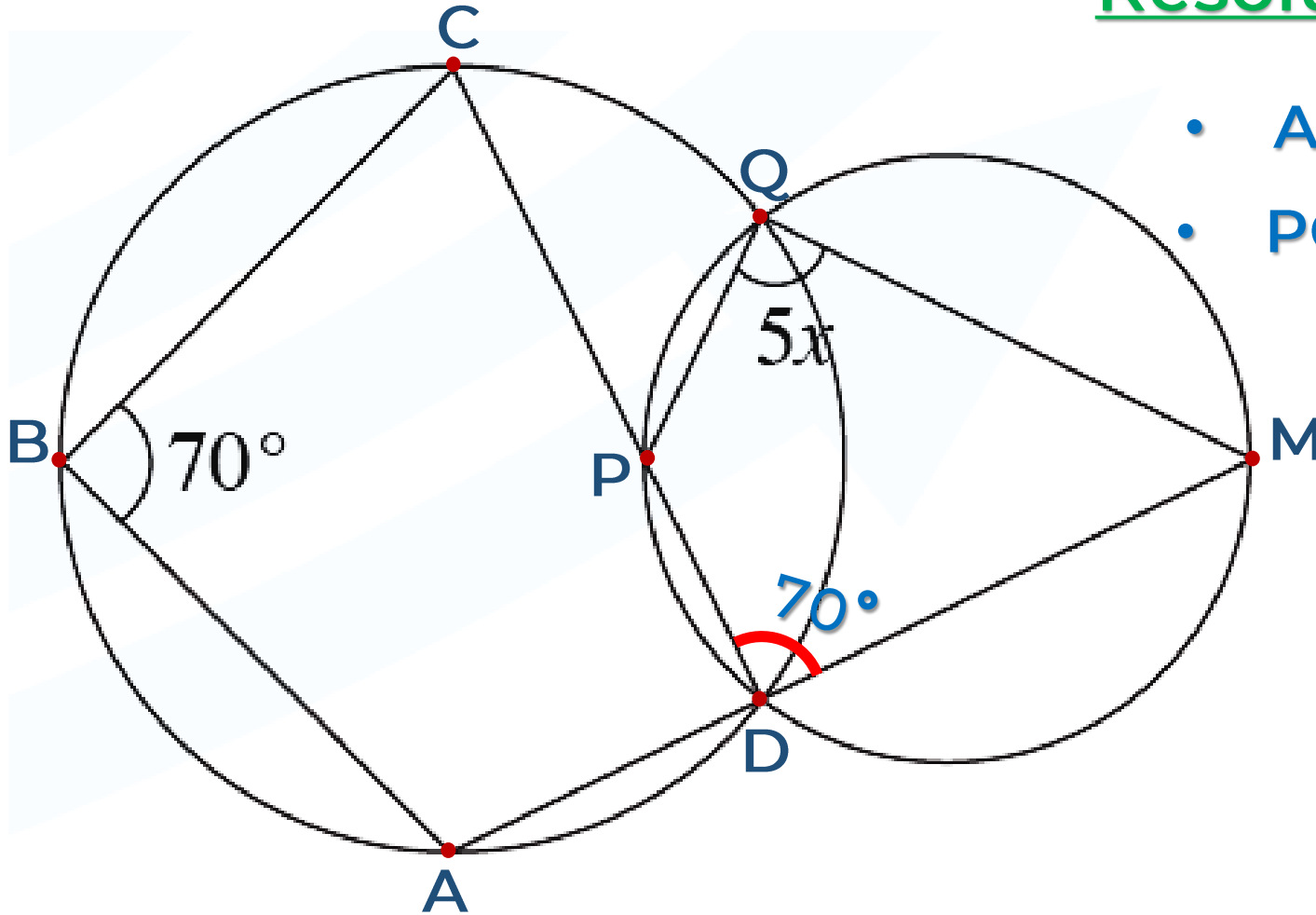
$$46^\circ$$



6. Del gráfico, halle el valor de x .

Resolución

- $ABCD$: Inscrito.
- $PQMD$: Inscrito.



$ABCD$: inscrito

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



$$5x + 70^\circ = 180^\circ$$

$$5x = 110^\circ$$

$$x =$$

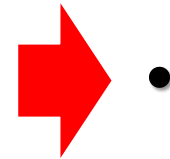
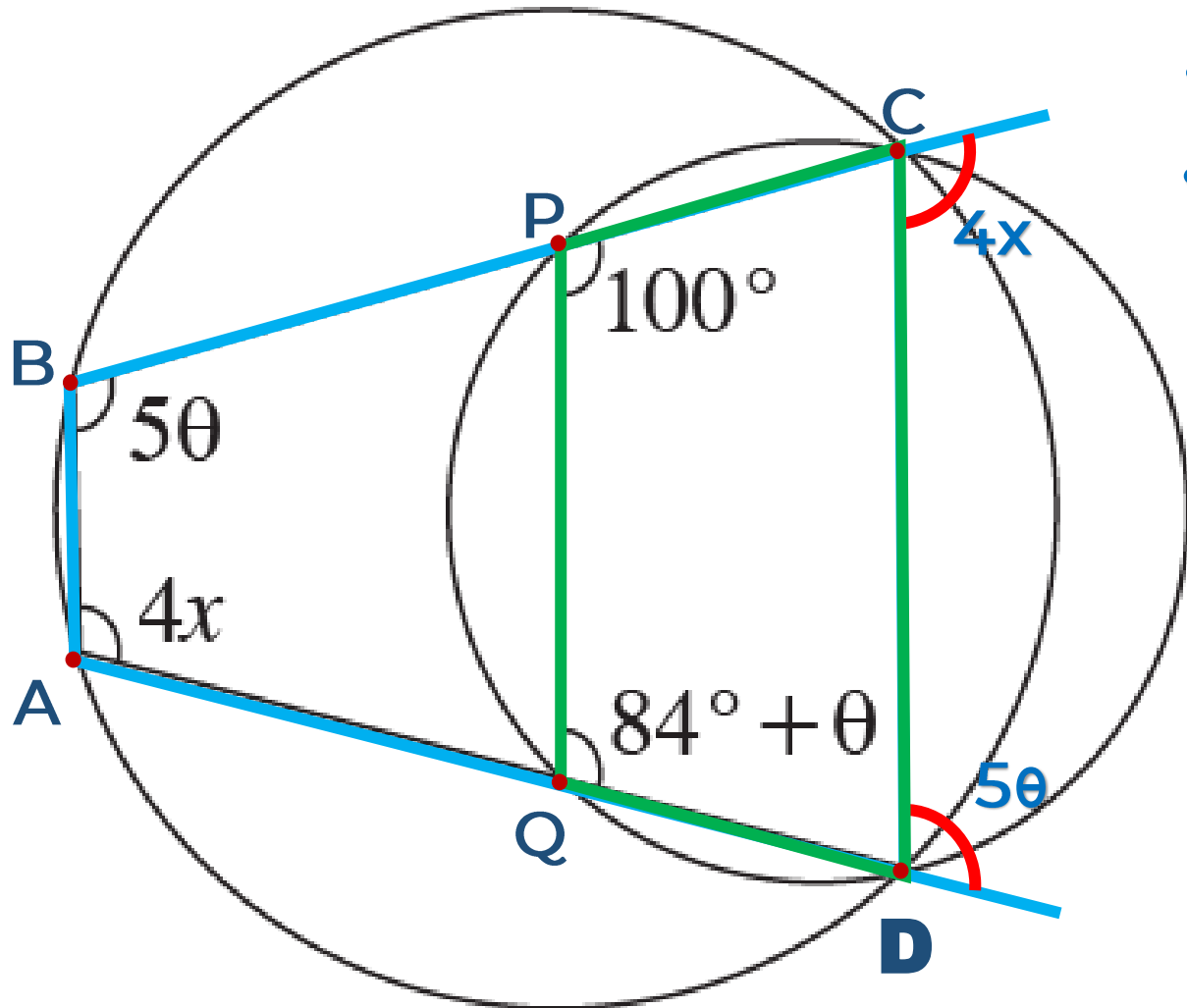
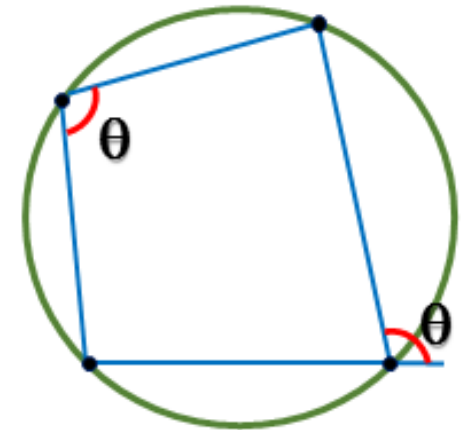
$$22^\circ$$



7. Del gráfico, halle el valor de x .

Resolución

- $ABCD$: Inscrito.
- $PQDC$: Inscrito.



•

$$5\theta = 100^\circ$$

$$\theta = 20^\circ$$

•

$$4x = 84^\circ + \theta$$

$$4x = 84^\circ + 20^\circ$$

$$4x = 104^\circ$$

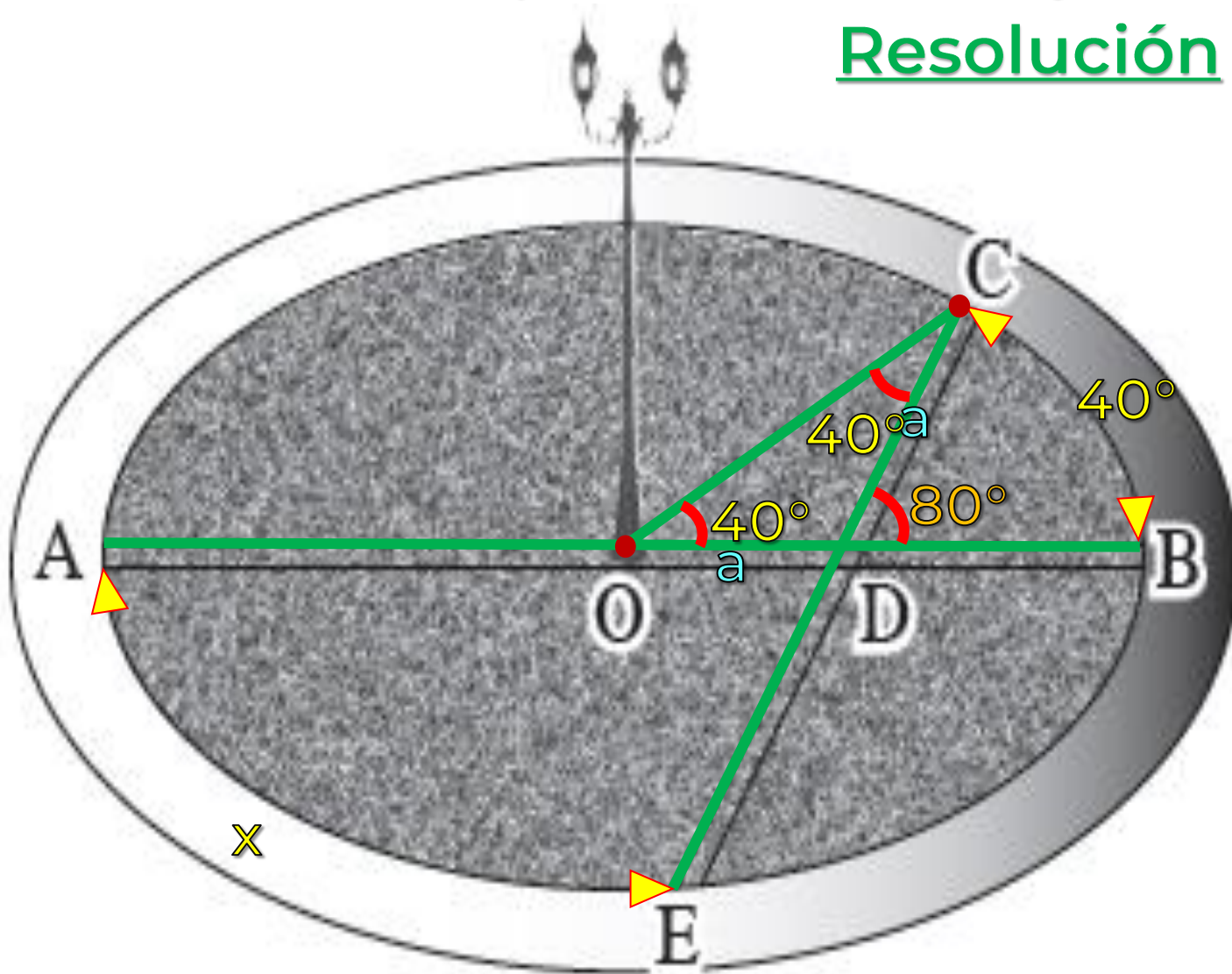
$$x =$$

$$26^\circ$$

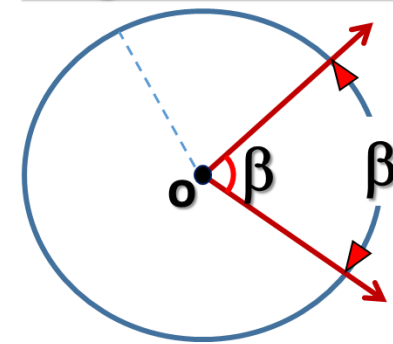


8. Se muestra un parque circular con una vereda diametral AB y en el centro O un poste. Si $\widehat{OD} \cong \widehat{DC}$ y $m\widehat{BC} = 40^\circ$, halle $m\widehat{AE}$.

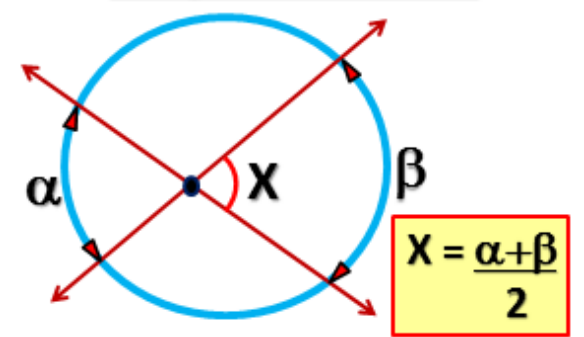
Resolución



Ángulo central



Ángulo interior



$$x = \frac{\alpha + \beta}{2}$$

$\triangle OCD$ Isósceles

$$\Rightarrow 80^\circ = \frac{x + 40^\circ}{2}$$

$$160^\circ = x + 40^\circ$$

$$x =$$

$$120^\circ$$