

# GEOMETRÍA Capítulo 11



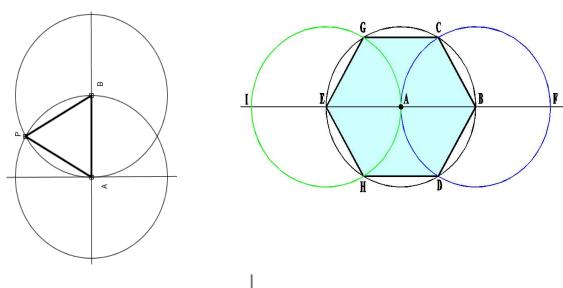


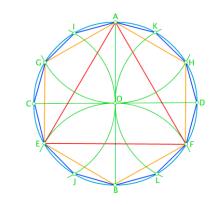
**POLÍGONOS REGULARES** 

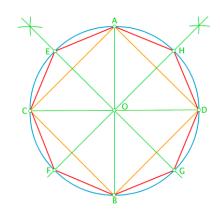


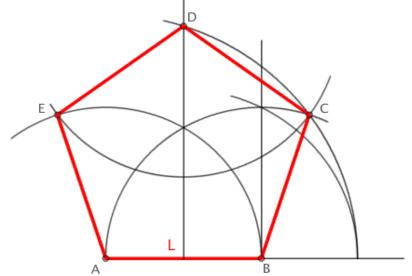
#### MOTIVATING | STRATEGY

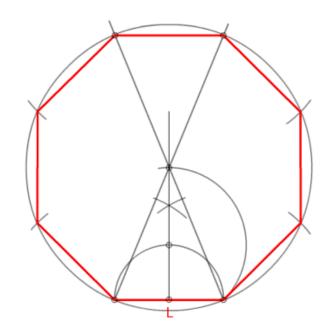








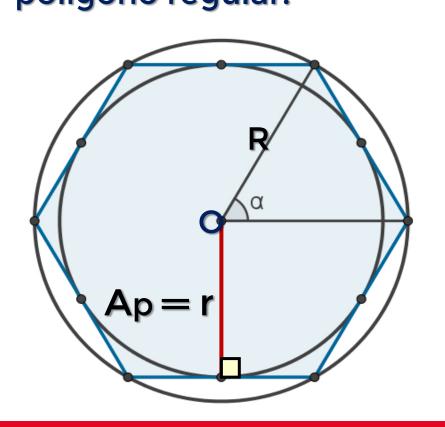




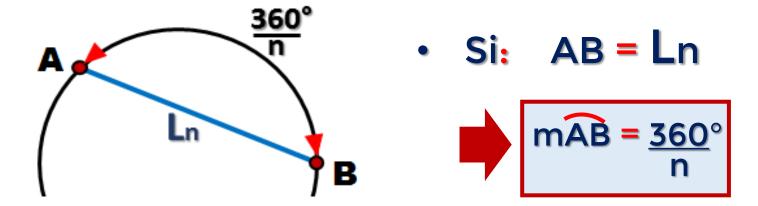
# Polígonos Regulares



Se denomina polígono regular al polígono convexo que es equiángulo y equilátero a la vez. Todo polígono regular se puede inscribir y circunscribir a dos circunferencias concéntricas, siendo el centro de estas el centro del polígono regular.

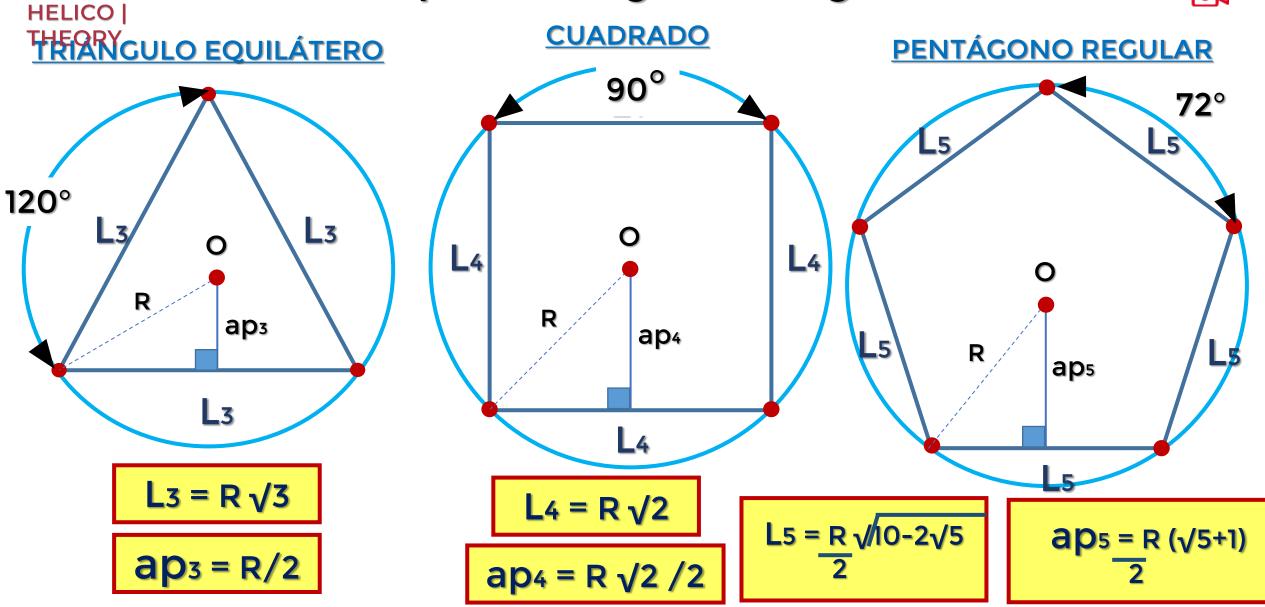


Para todo polígono regular, el calculo de la medida del ángulo central es:

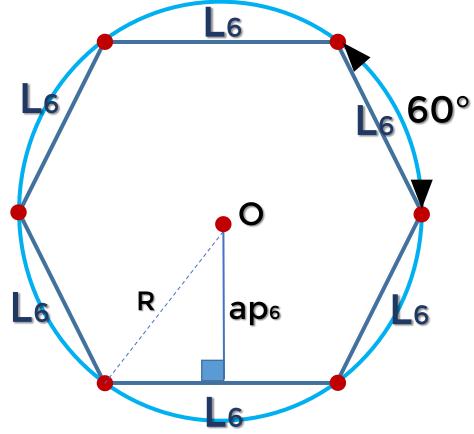


## Principales Polígonos Regulares







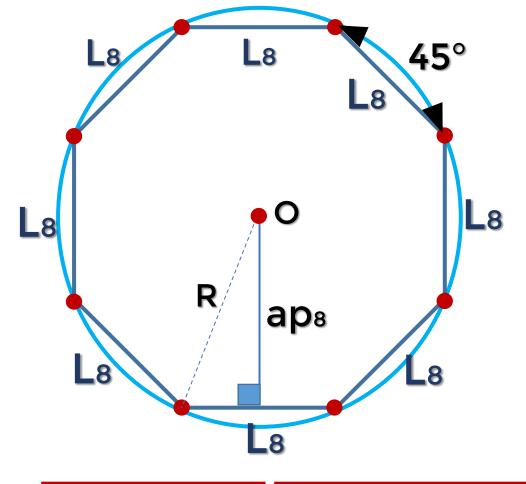


$$L_6 = R$$

$$ap_6 = \frac{R\sqrt{3}}{2}$$





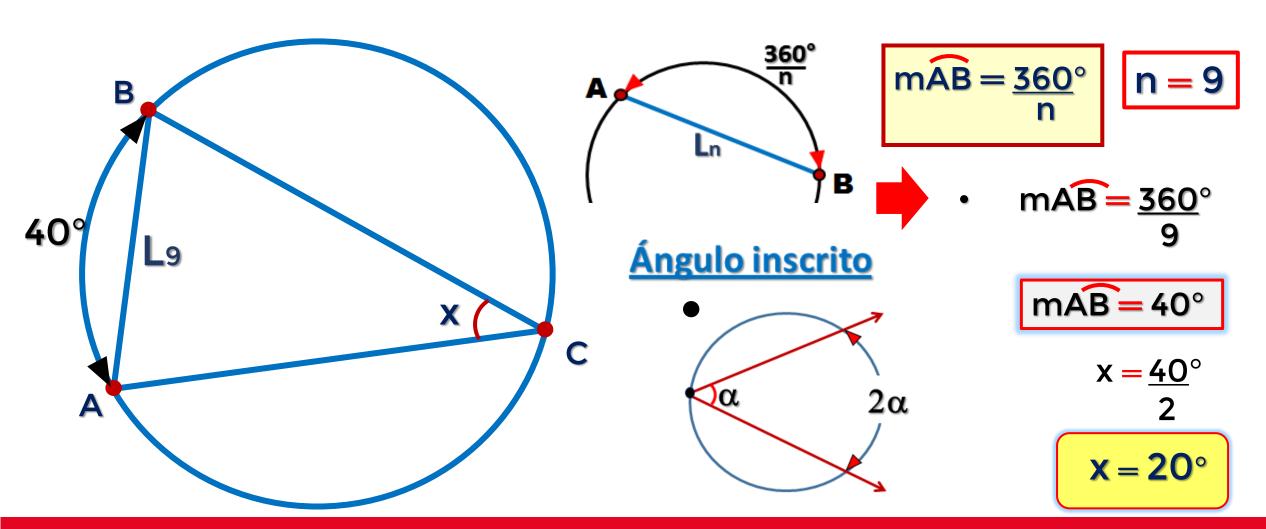


L8 = R 
$$\sqrt{2-\sqrt{2}}$$

$$ap8 = \frac{R}{2} \sqrt{2 + \sqrt{2}}$$

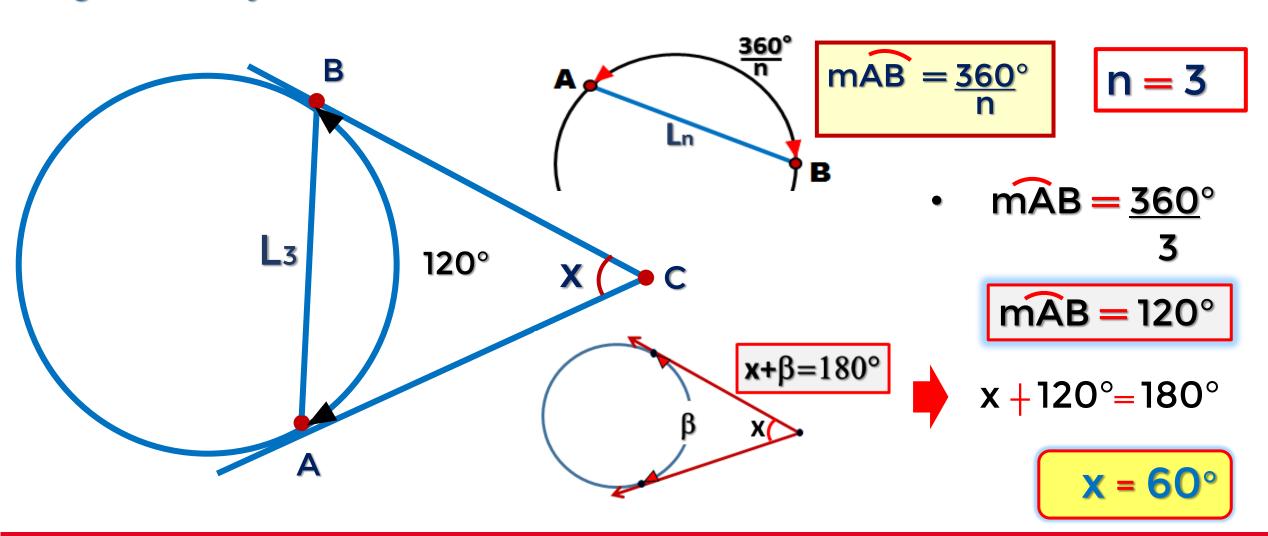


# 1. Se tiene un triángulo ABC inscrito en una circunferencia, tal que AB = L9 Halle la m<ACB.



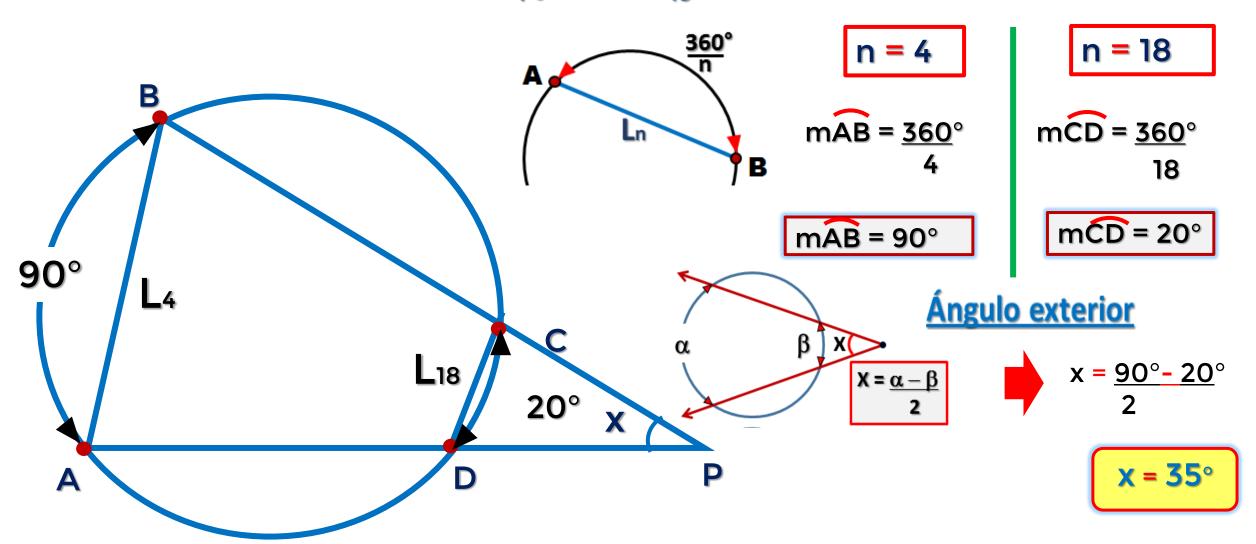


2. Desde un punto C exterior a una circunferencia, se trazan los segmentos tangentes CA y CB. Si AB = L<sub>3</sub>, halle la m<ACB.



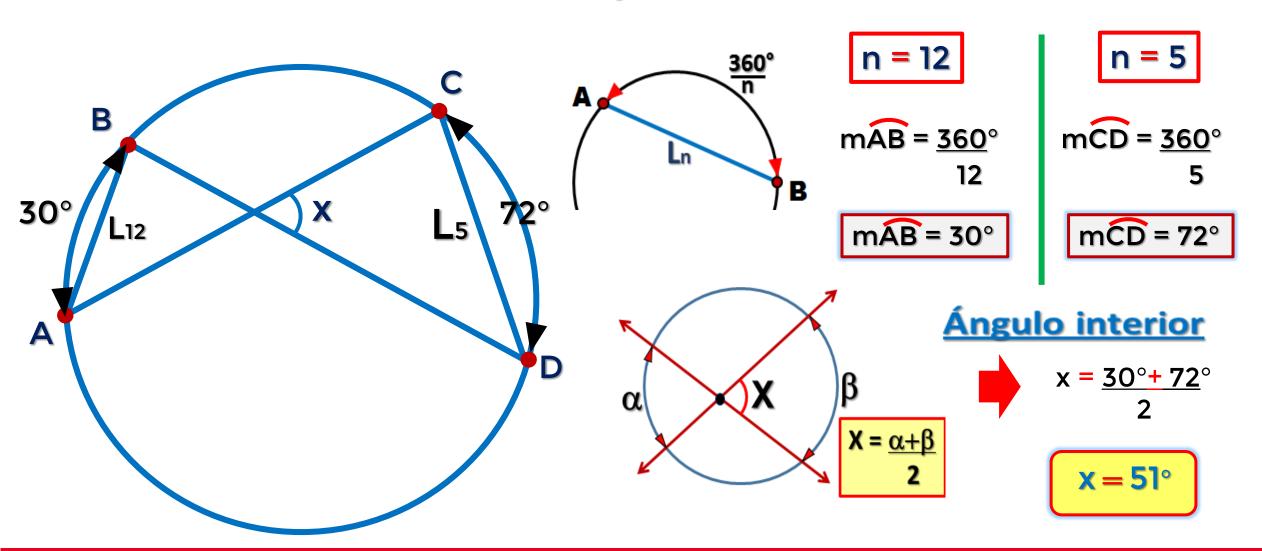


#### 3. Halle el valor de x si AB = $L_4$ y CD = $L_{18}$ .



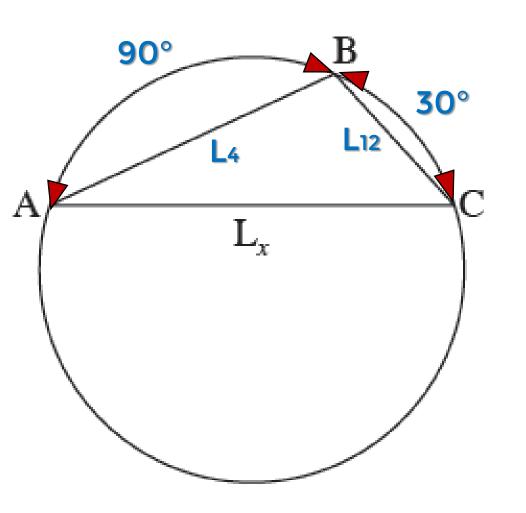


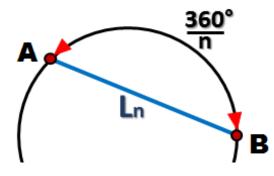
### 4. Halle el valor de x si $AB = L_{12}$ y $CD = L_5$ .

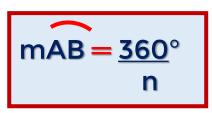




## 5. Halle el valor de $x si AB = L_4 y BC = L_{12}$ .









$$mAB = 360^{\circ}$$

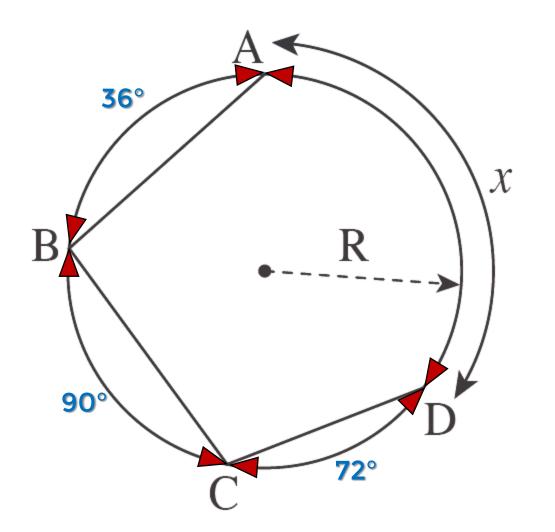
$$mBC = 360^{\circ}$$

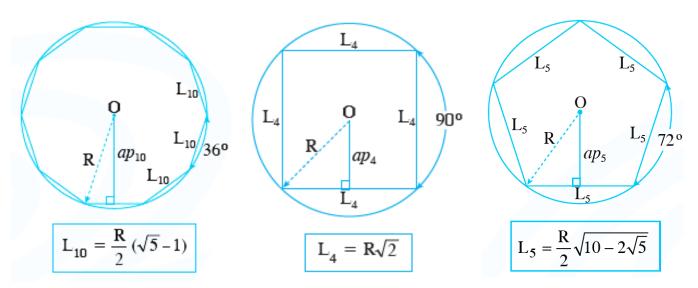
$$120^{\circ} = \frac{360^{\circ}}{x}$$

$$x = 3$$



# 6. Calcule x, si AB = $\frac{R}{2}(\sqrt{5} - 1)$ , BC = $R\sqrt{2}$ y CD = $\frac{R}{2}\sqrt{10 - 2\sqrt{5}}$ .





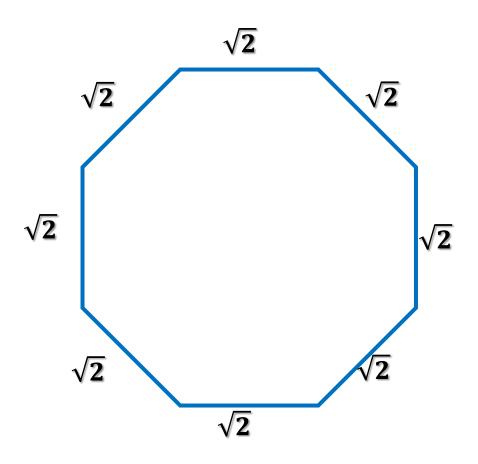


$$36^{\circ} + 90^{\circ} + 72^{\circ} + x = 360^{\circ}$$
  
 $198^{\circ} + x = 360^{\circ}$ 

 $x = 162^{\circ}$ 

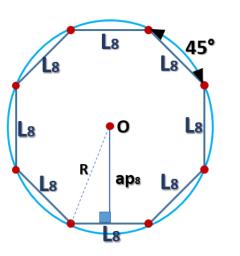


7. Calcule el perímetro de un octógono regular si el radio de la circunferencia circunscrita mide  $\sqrt{2+\sqrt{2}}u$ .



#### **OCTÁGONO REGULAR**





Reemplazando:  $R = \sqrt{2+\sqrt{2}}$ 

$$L_8 = \sqrt{2 + \sqrt{2} - \sqrt{2}}$$

$$L_8 = \sqrt{2}$$

Nos piden el perímetro: 2p

$$2p_{0} = \sqrt{2} + \sqrt{2} + \sqrt{2} + \sqrt{2} + \sqrt{2} + \sqrt{2} + \sqrt{2}$$

$$2p_{0} = 8\sqrt{2}$$



8. Una de las plazas de la ciudad de Chiclayo tiene en su contorno a un hexágono regular ABCDEF. Si M es punto medio de  $\overline{\text{FE}}$  y BM =  $\sqrt{39}$ . Calcular la longitud de la apotema de

