



GEOMETRÍA

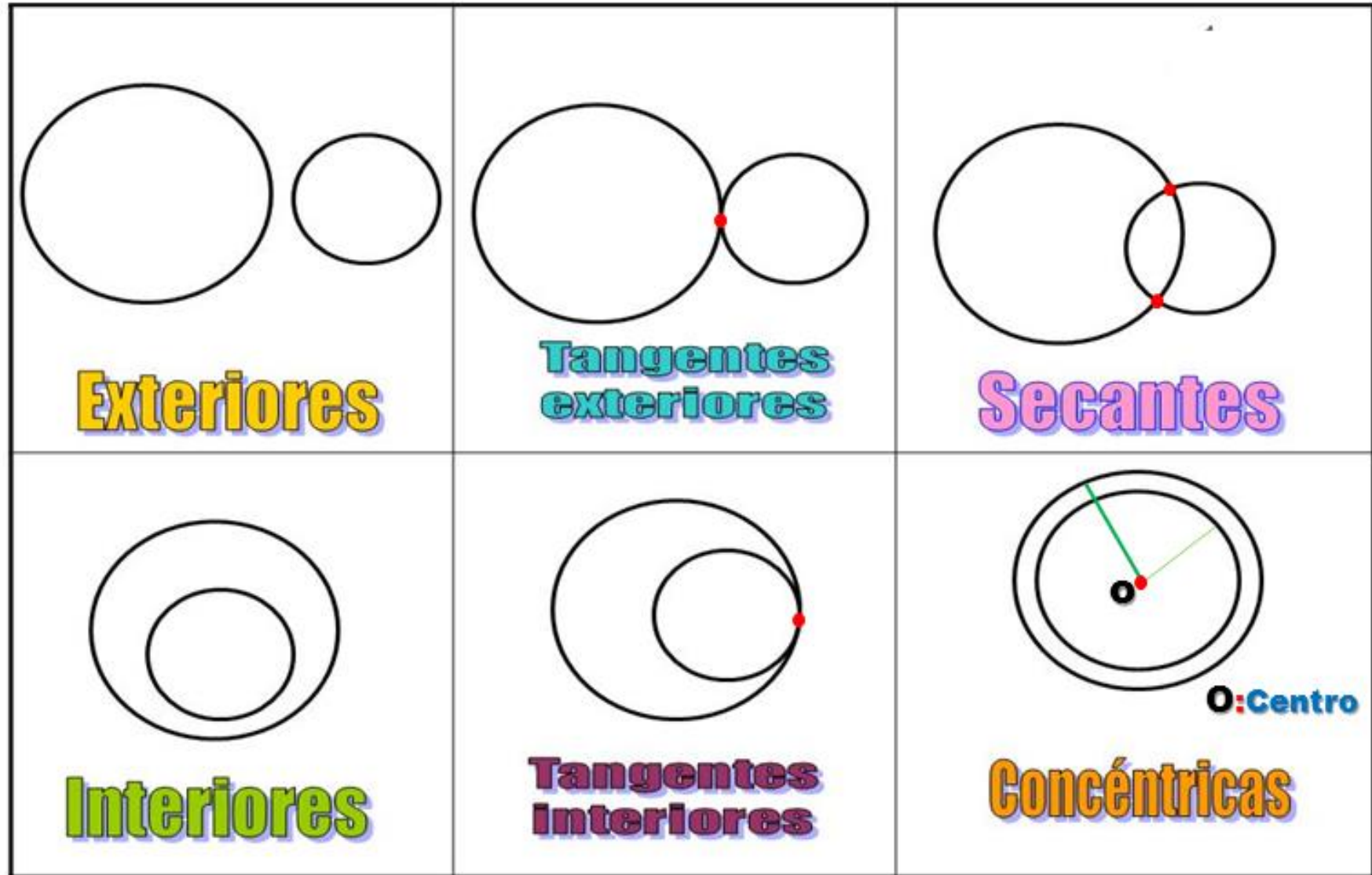
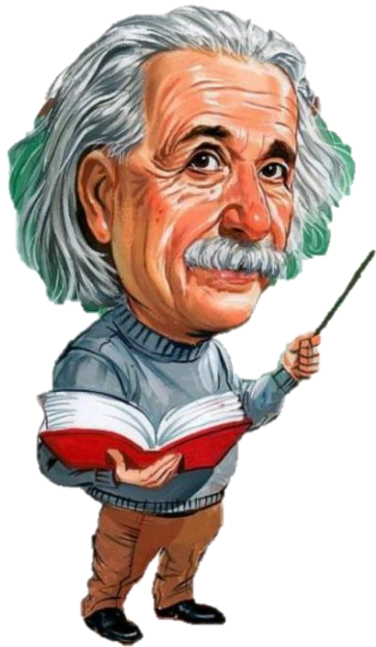
Capítulo 14

2st
SECONDARY

Circunferencia II

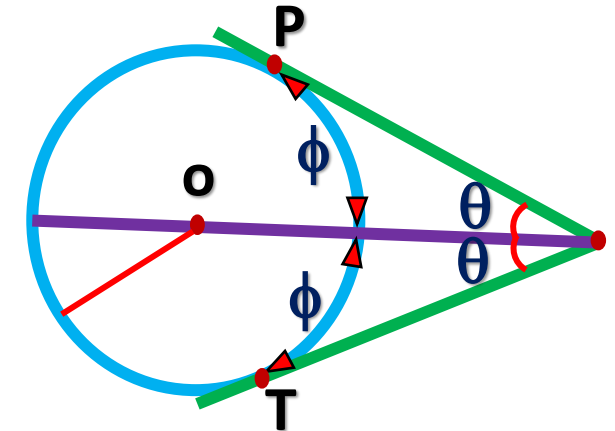
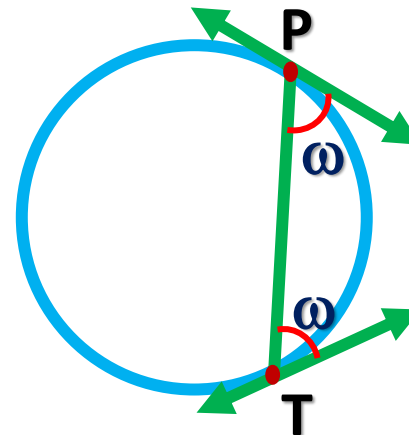
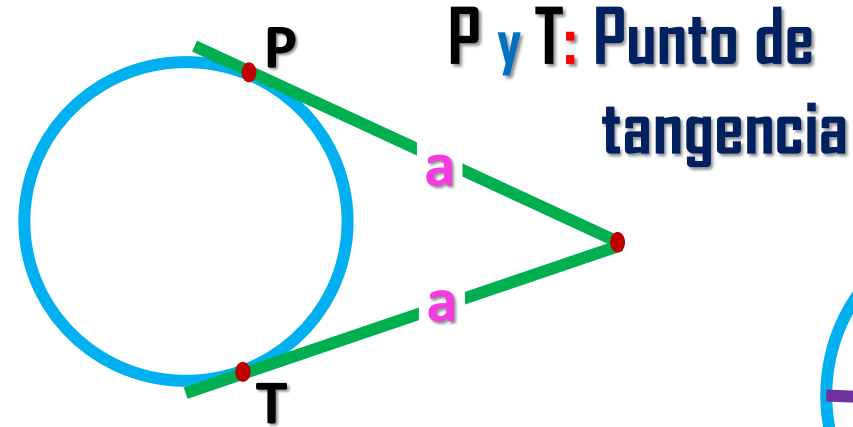
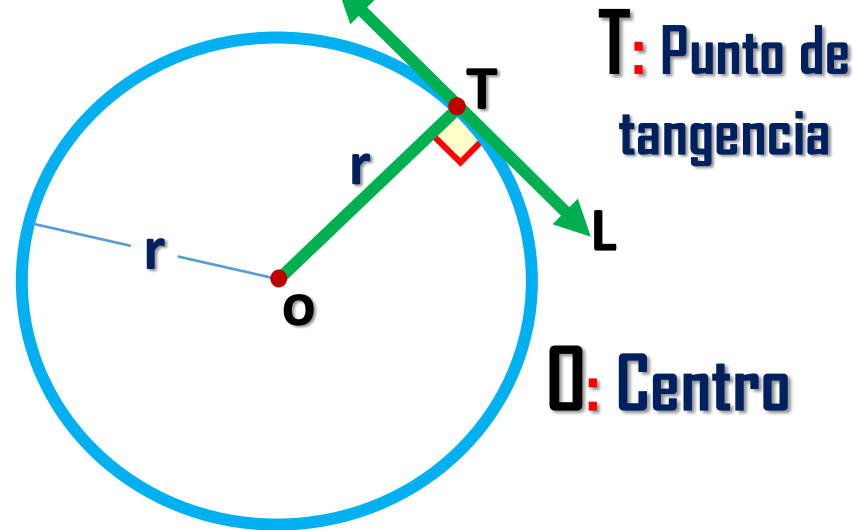
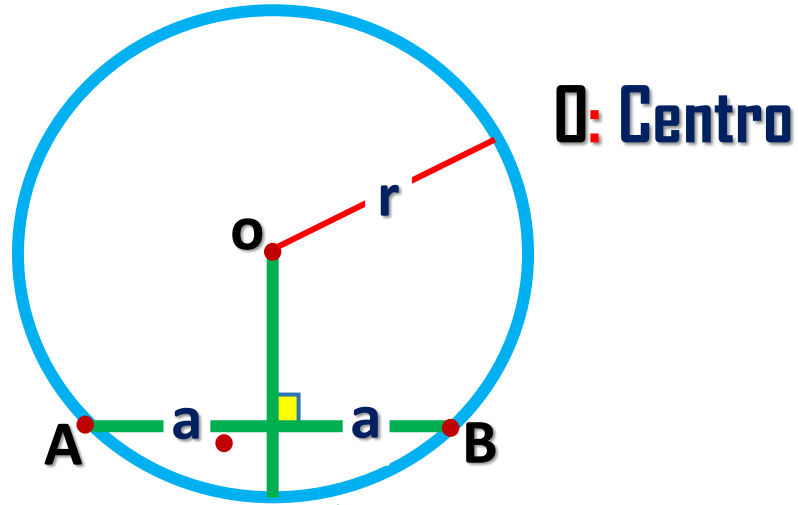


 **SACO OLIVEROS**



TEOREMAS

LINEAS ASOCIADAS A LA CIRCUNFERENCIA

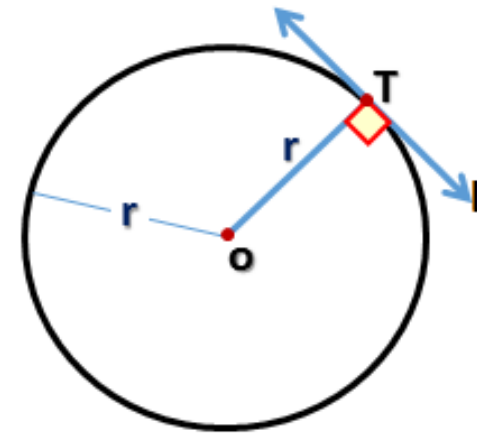
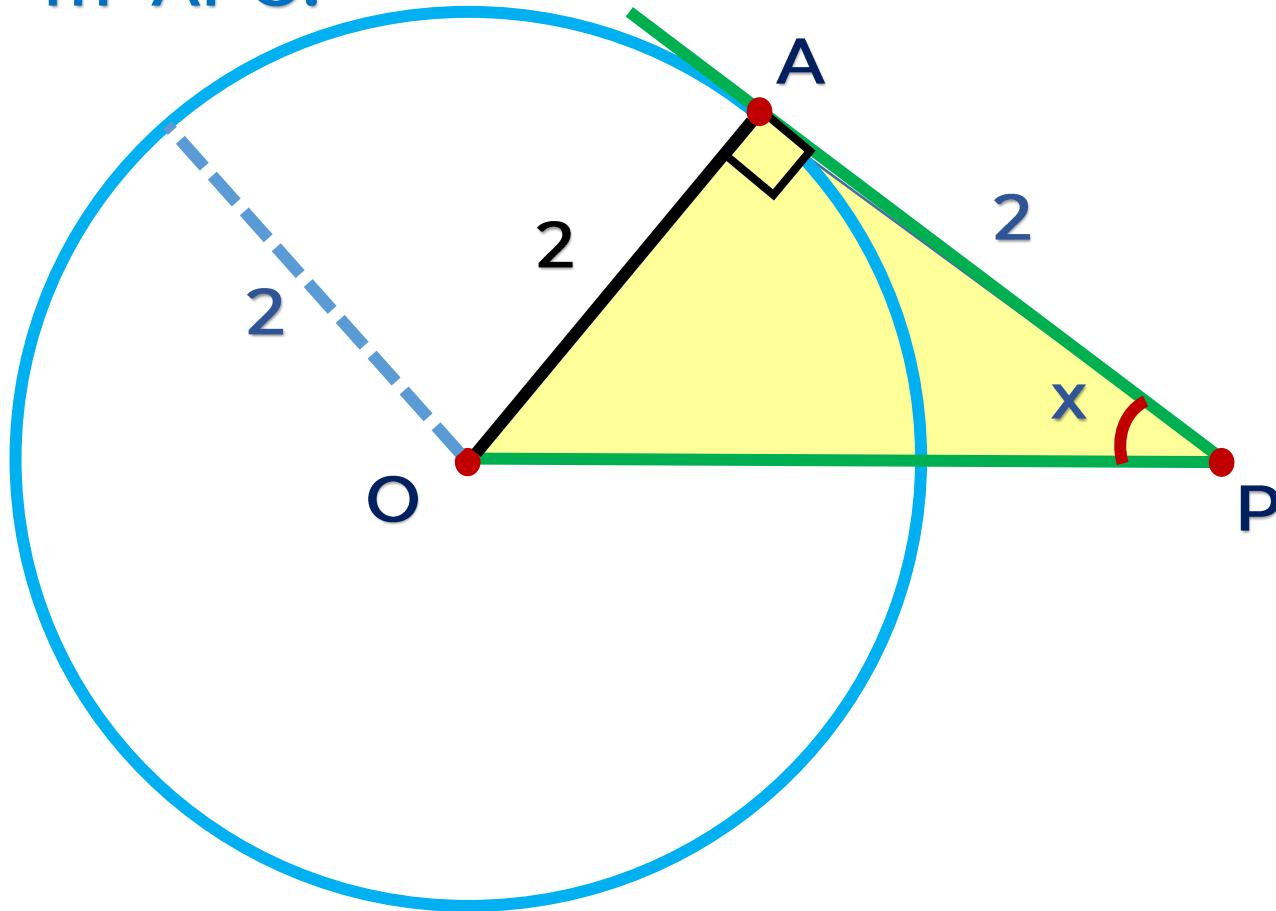


O: Centro

$$\phi + \theta = 90^\circ$$



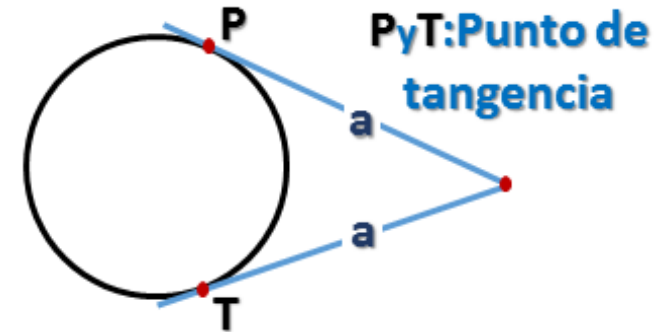
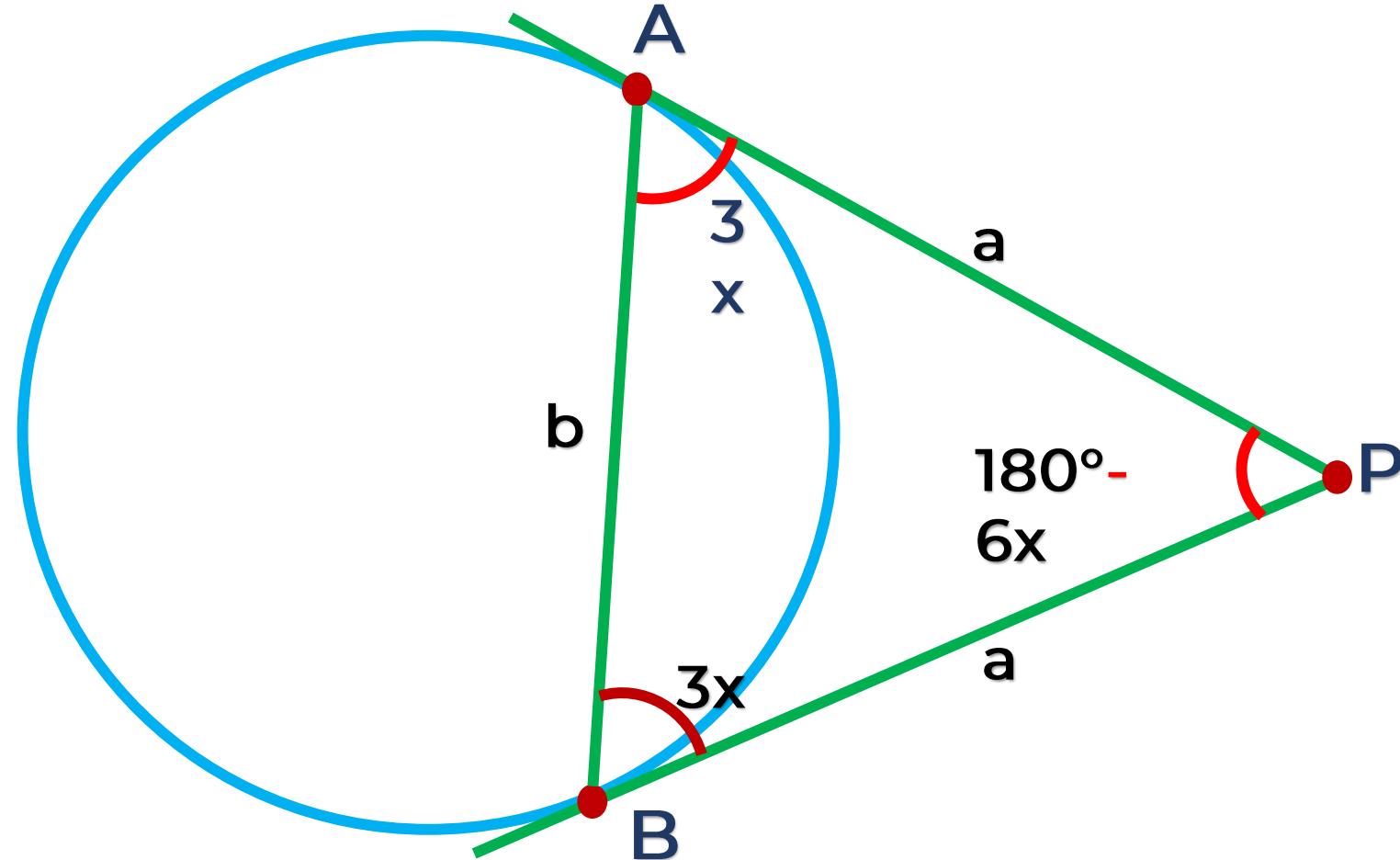
1. Desde un punto exterior P a una circunferencia se traza la tangente PA . Si O es el centro, el radio mide $2m$ y $PA = 2m$, halle $m\angle APO$.



➡ Por  notable

$$x = 45^\circ$$

2. Desde un punto P exterior a una circunferencia se trazan las tangentes PA y PB. Si $AP > AB$ y $m\angle PAB = 3x$, halle el menor entero valor de x.

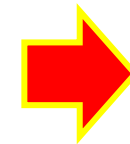
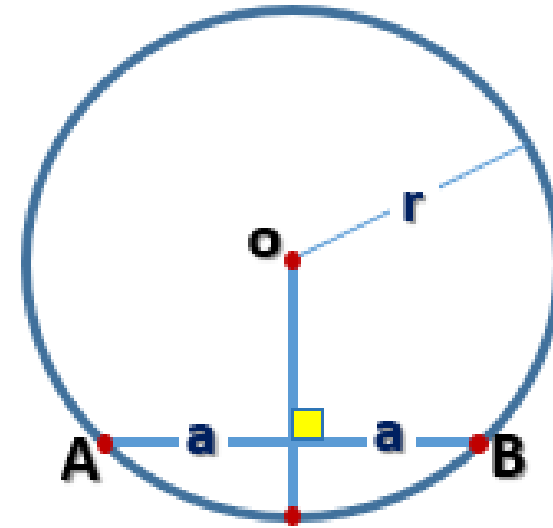
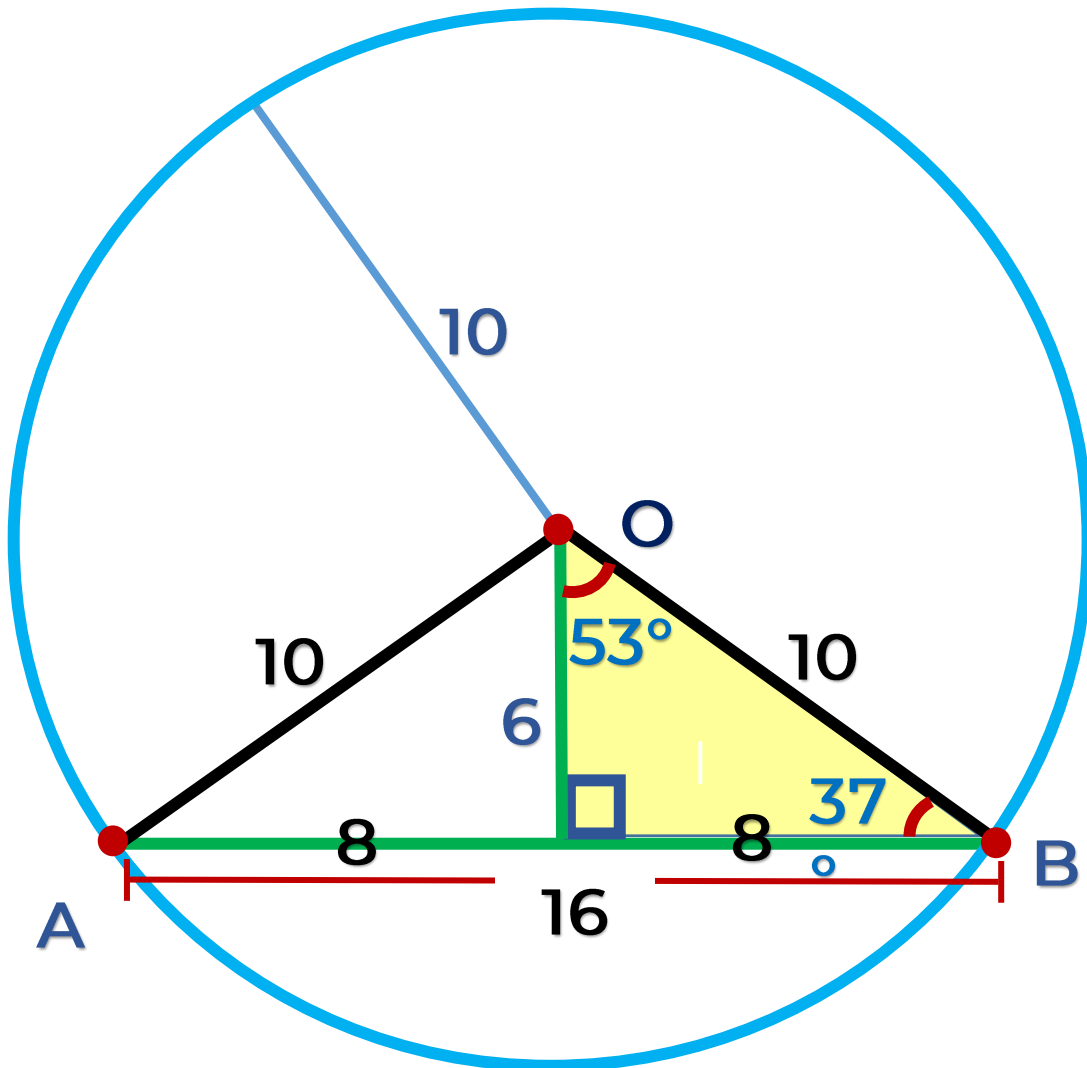


- Por dato $AP > AB$

$$\begin{aligned} \Rightarrow 3x &> 180^\circ - 6x \\ 9x &> 180^\circ \\ x &> 20^\circ \end{aligned}$$

$$X \text{ min} = 21^\circ$$

3. Si O es centro, halle AB.

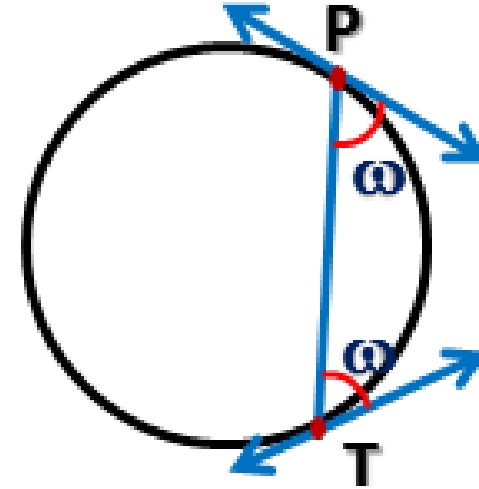
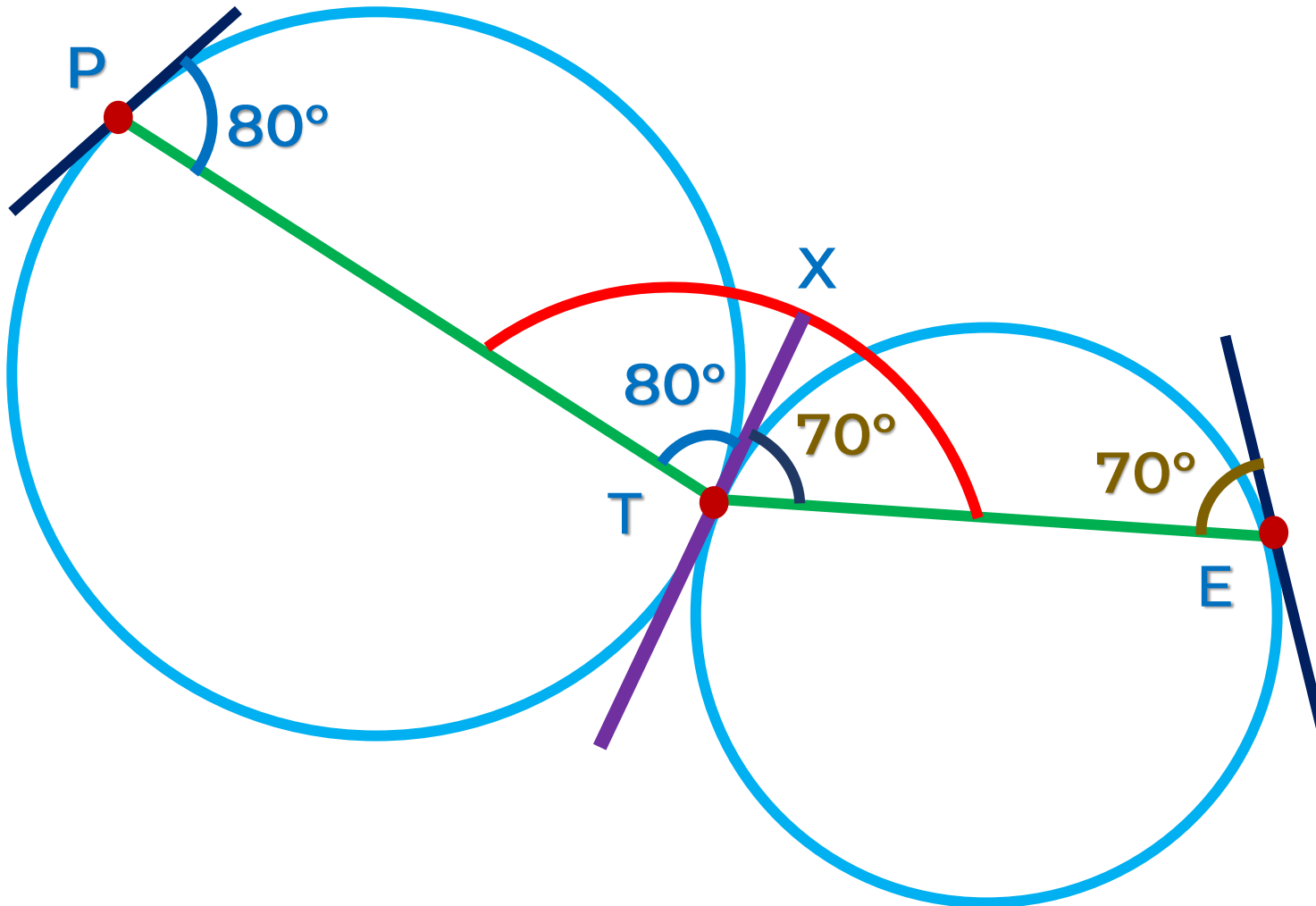


• Por notable 37° y 53°

$$AB = 8 + 8$$

$$AB = 16$$

4. Si P, T y E son puntos de tangencia, halle el valor de x.



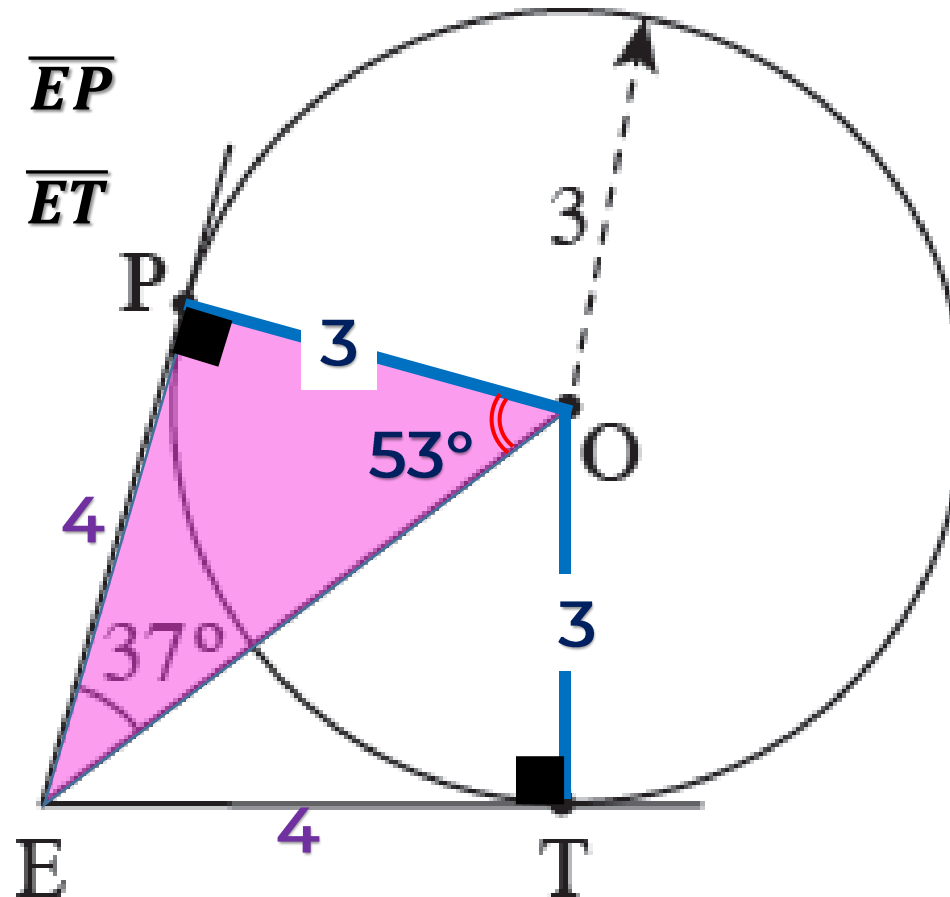
→ $X = 80^\circ + 70^\circ$

$X = 150^\circ$

5. Si O es centro y, P y T son puntos de tangencia, halle ET.

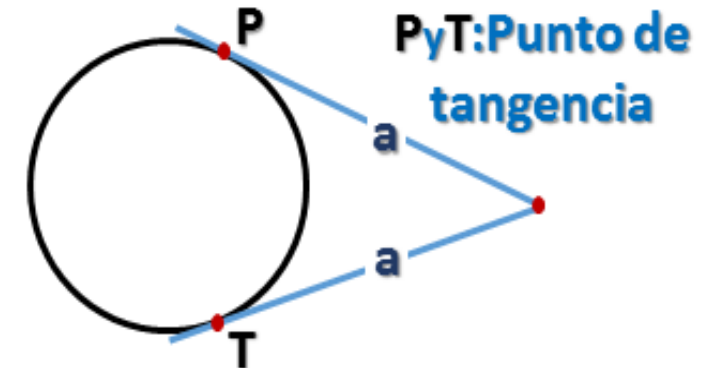
- Se traza $\overline{OP} \perp \overline{EP}$
- Se traza $\overline{OT} \perp \overline{ET}$

→ $OP = OT = 3$



- En $\triangle EPQ$ ($53^\circ - 37^\circ$)

→ $EP = 4$

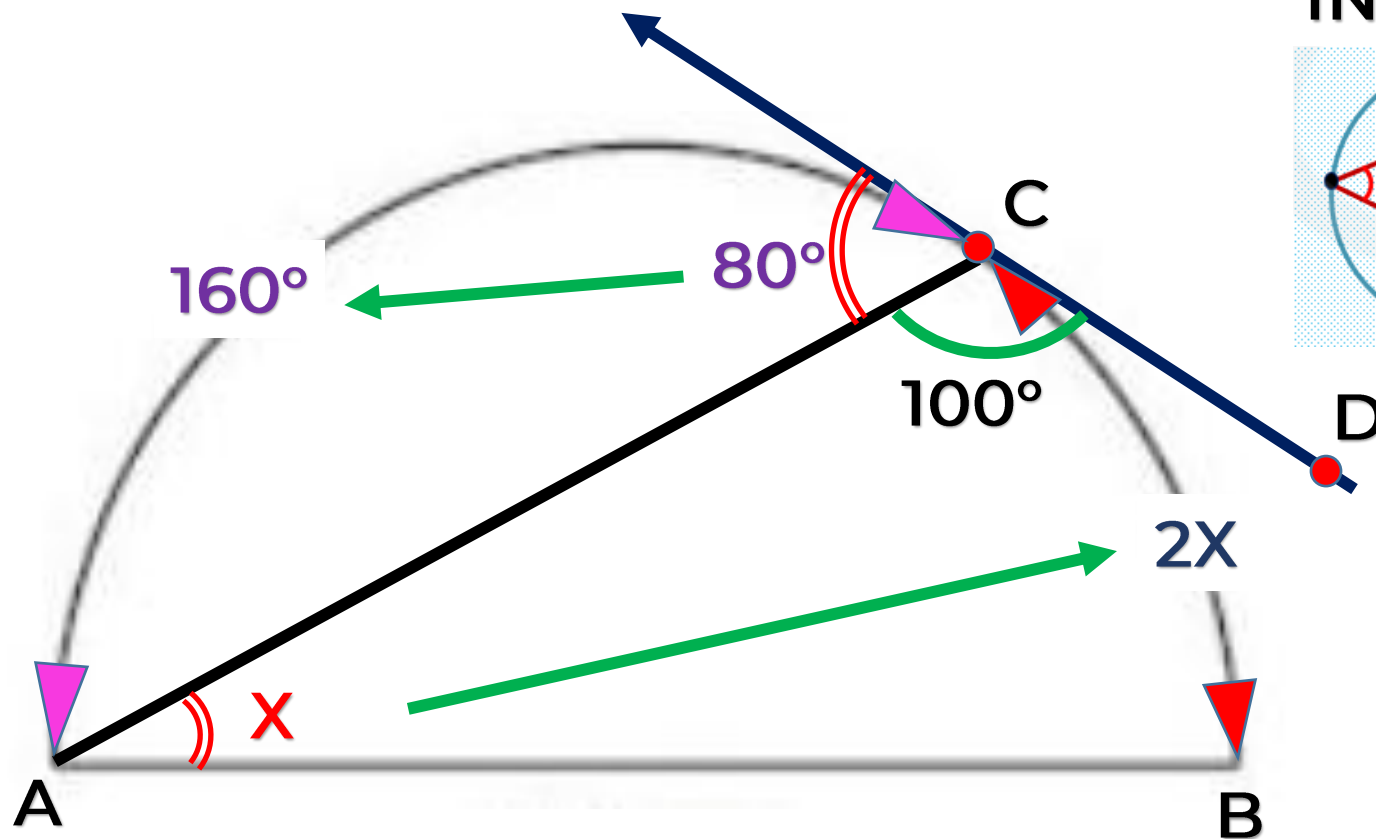


- $EP = ET = 4$

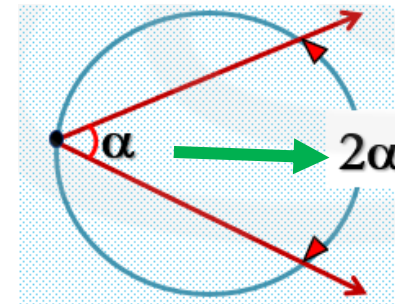
$ET = 4$



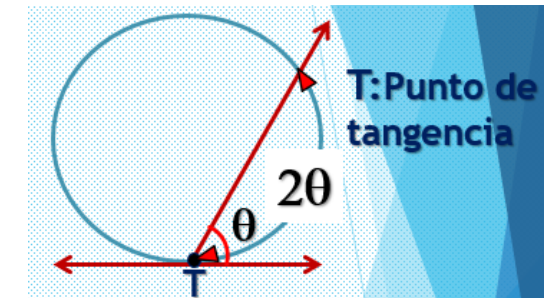
6. En una semicircunferencia de diámetro \overline{AB} se ubica un punto C, luego se traza la tangente \overline{CD} . Si $m\angle ACD = 100^\circ$, halle $m\angle CAB$.



ÁNGULO INSCRITO



ÁNGULO SEMI INSCRITO



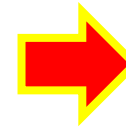
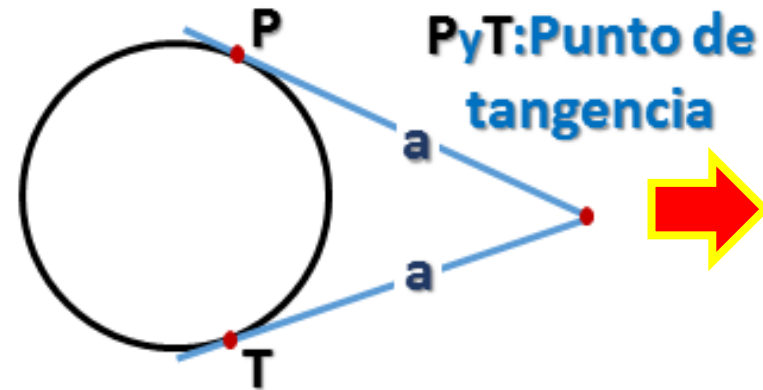
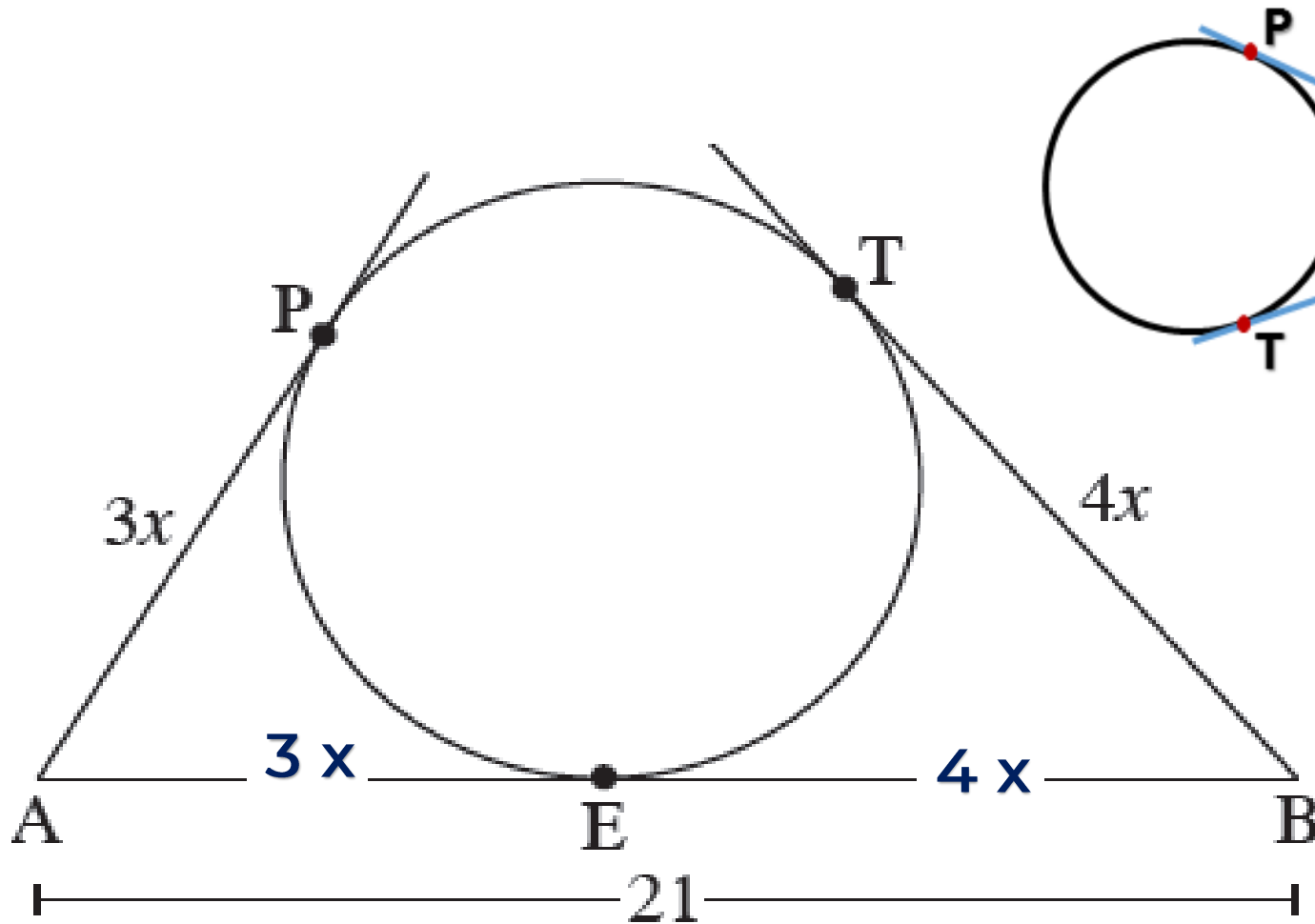
\overline{AB} DIÁMETRO

$$\widehat{AB} = \widehat{AC} + \widehat{CB}$$

$$180^\circ = 160^\circ + 2X$$

$$x = m\angle CAB = 10^\circ$$

7. Si P, T y E son puntos de tangencia, halle el valor de x.



$$\left\{ \begin{array}{l} AP = AE = 3x \\ TB = EB = 4x \end{array} \right.$$

En \overline{AB}

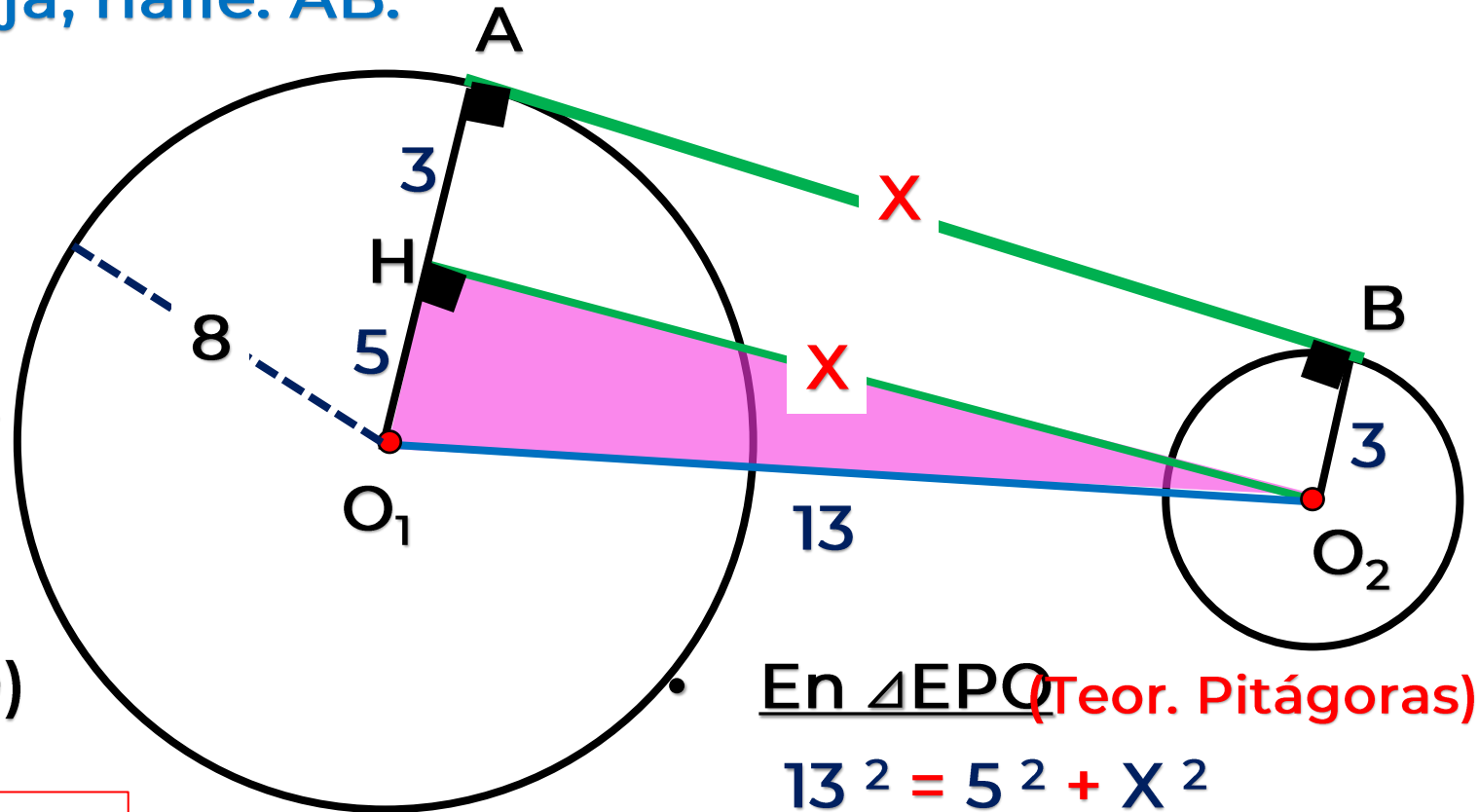
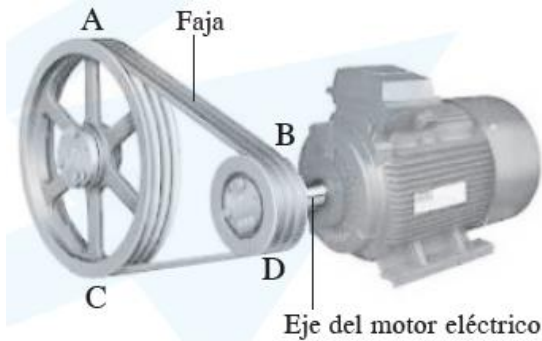
$$AB = AE + EB$$

$$21 = 3x + 4x$$

$$21 = 7x$$

$$x = 3$$

8. Se muestra un motor eléctrico, formado por dos poleas de radios 3cm y 8cm. Si los centros de las poleas distan 13cm, A y B son puntos de tangencia con la faja, halle. AB.



- Se traza $\overline{O_1A}$ y $\overline{O_2B} \perp \overline{AB}$
- Se traza $\overline{O_2H} \perp \overline{O_1A}$
- HABO₂ (RECTÁNGULO)

$$\begin{cases} AB = HC = x \\ AH = BO_2 = 3 \end{cases} \Rightarrow HO_1 = 5$$

En $\triangle EPO$ (Teor. Pitágoras)

$$13^2 = 5^2 + x^2$$

$$x = AB = 12 \text{ cm}$$