



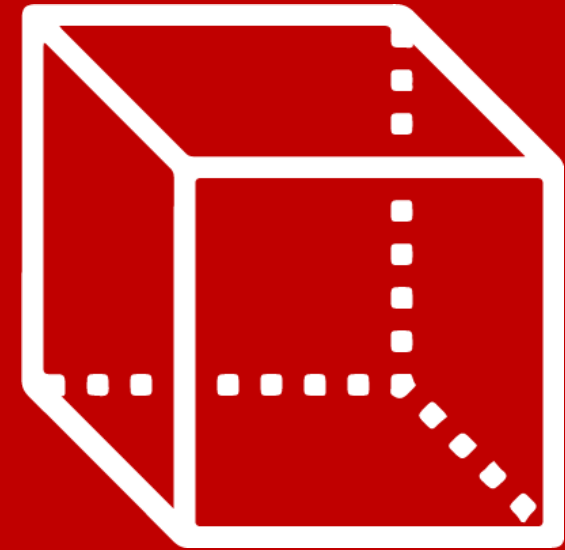
GEOMETRÍA

Retroalimentación

tomo V

2nd

SECONDARY



 **SACO OLIVEROS**



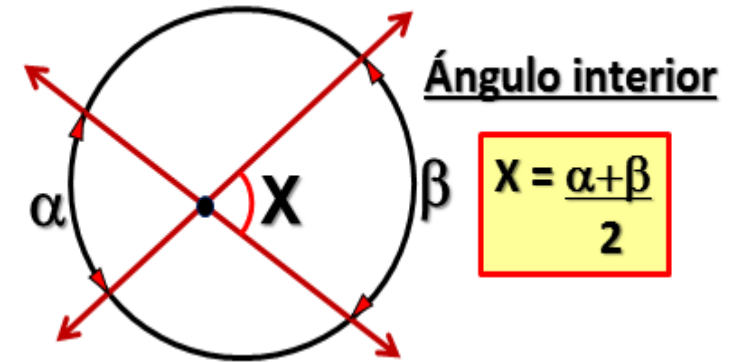
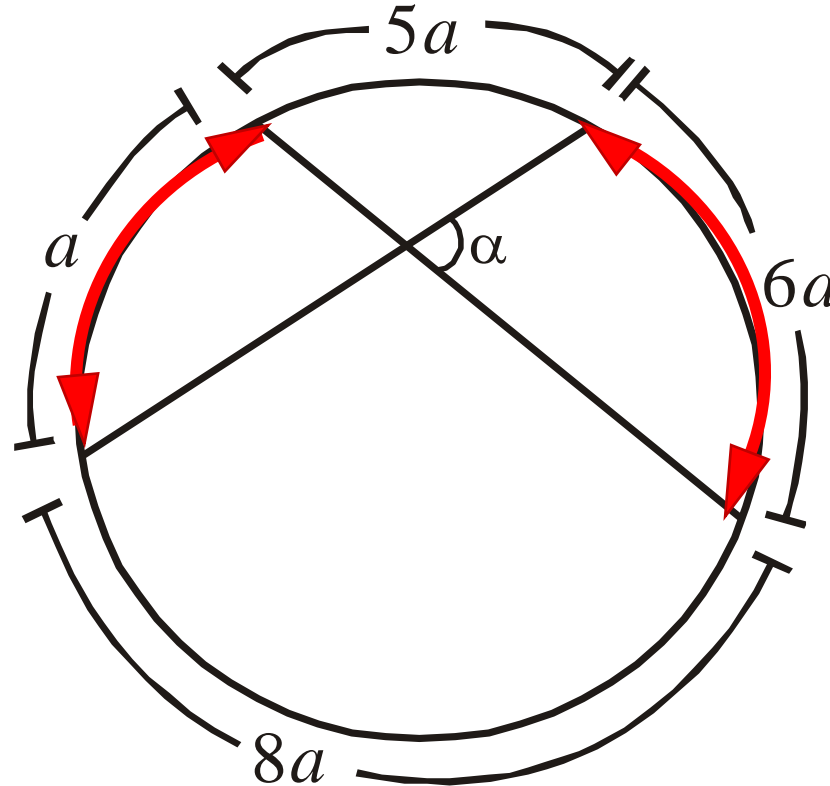
1. En la figura, halle el valor de α .

En la circunferencia

$$a + 5a + 6a + 8a = 360^\circ$$

$$20a = 360^\circ$$

$$a = 18^\circ$$



$$\Rightarrow \alpha = \frac{a + 6a}{2}$$

$$2\alpha = 7a$$

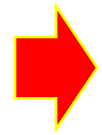
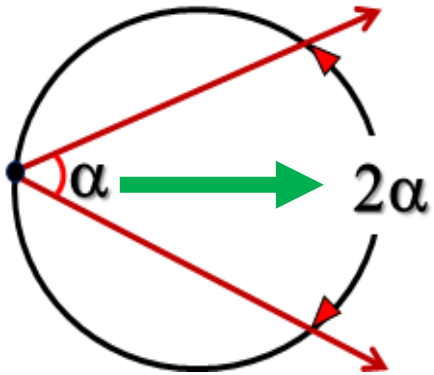
$$\cancel{2}\alpha = 7(\cancel{1}8^\circ)^9$$

$$\alpha = 63^\circ$$

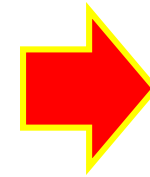
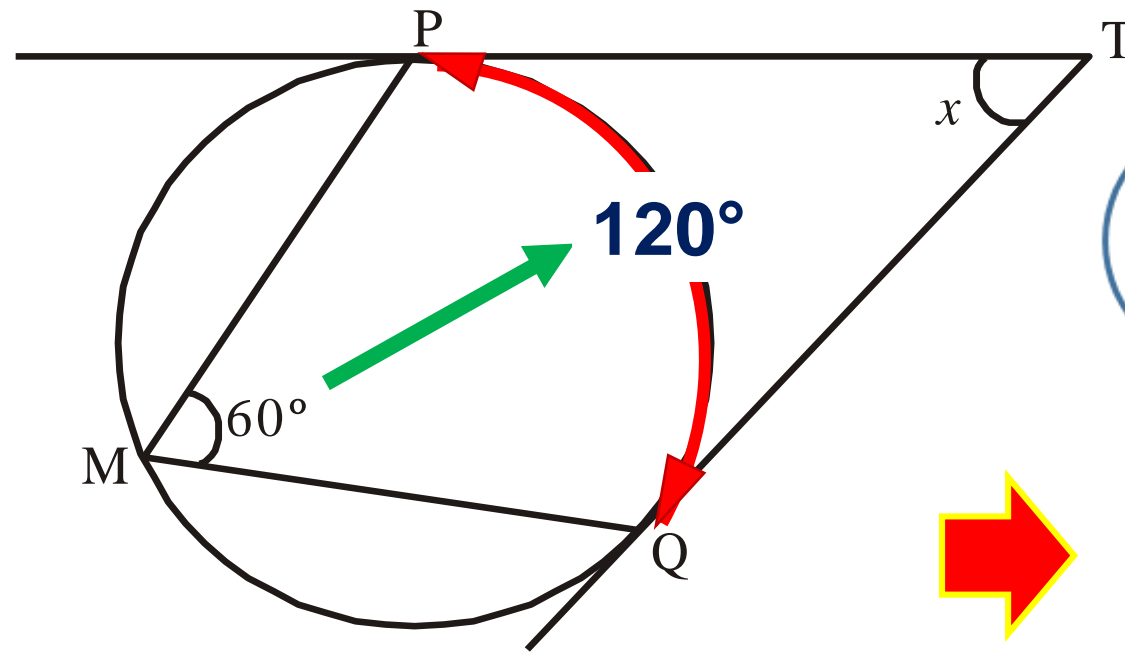


2. Si P y Q son puntos de tangencia, halle el valor de x.

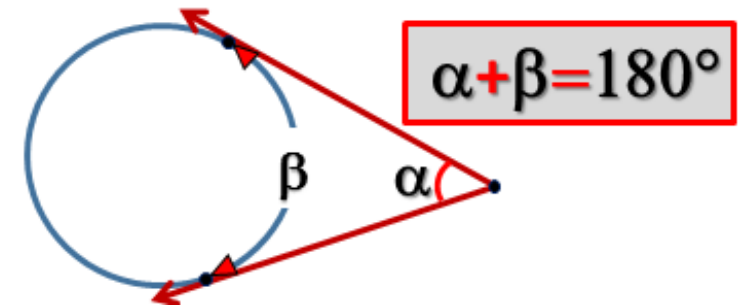
Ángulo inscrito



$$m \widehat{PQ} = 120^\circ$$



TEOREMA



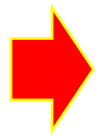
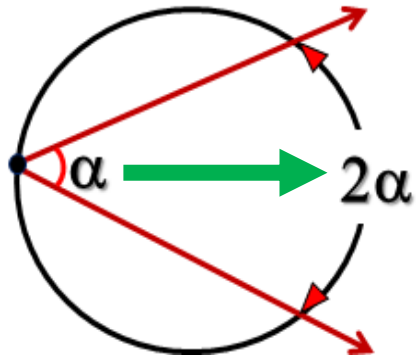
$$120^\circ + x = 180^\circ$$

$$x = 60^\circ$$



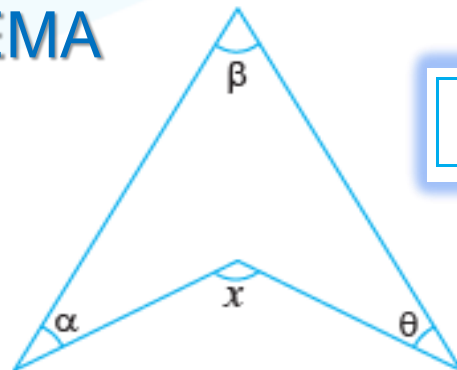
3. En la figura O es centro. Calcule x

Ángulo inscrito

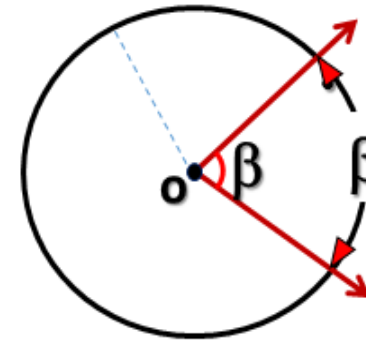
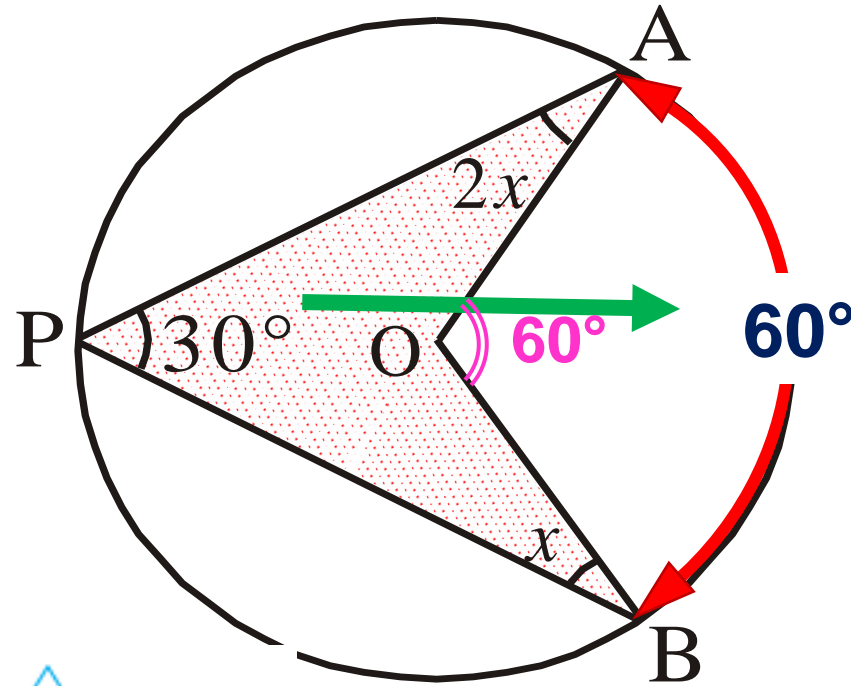


$$m \widehat{AB} = 60^\circ$$

TEOREMA



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



Ángulo central

O : Centro



$$m \angle AOB = 60^\circ$$

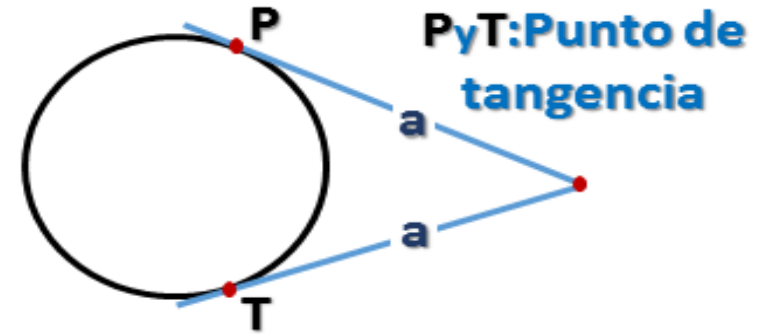
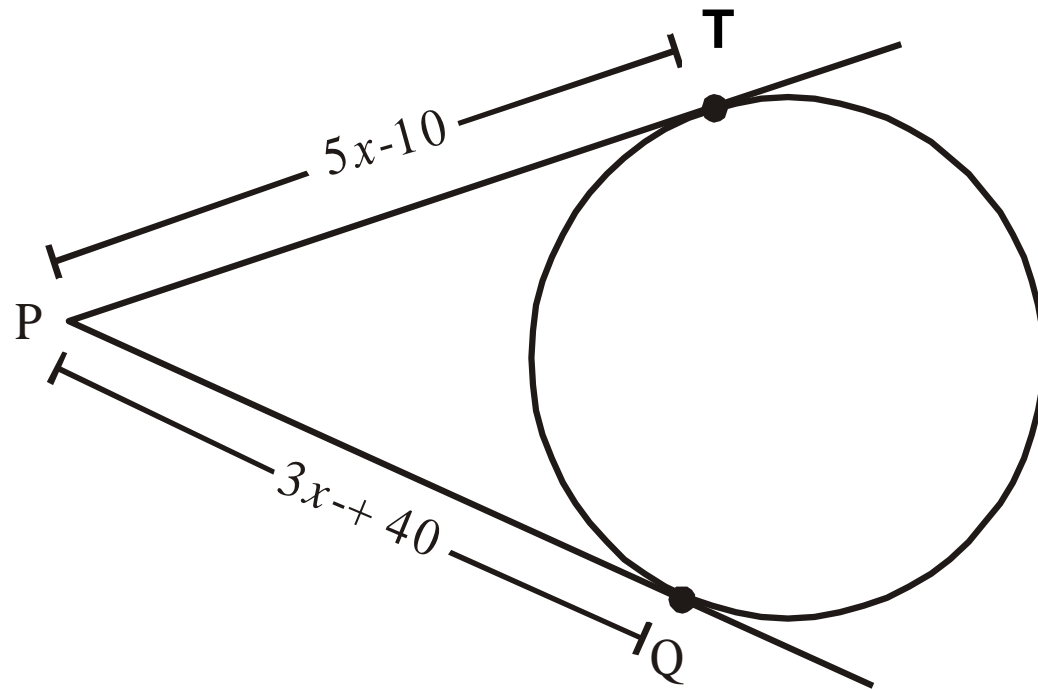
$$30^\circ + 2x + x = 60^\circ$$

$$3x = 30^\circ$$

$$x = 10^\circ$$

4. En el gráfico, calcular x . Si: P y Q son puntos de tangencia.

TEOREMA



$$PT = PQ$$

$$5x - 10 = 3x + 40$$

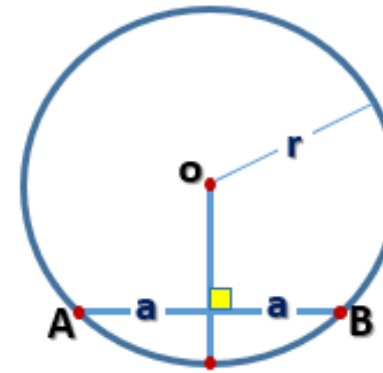
$$2x = 50$$

$$x = 25$$

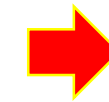


5. Calcular x , en la circunferencia de centro O . Si $OA=10$ y $MN=16$

TEOREMA



Si $MN = 16$

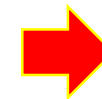


$MH = HN = 8$

Además: $OA = 10 = ON$ (Radio)

$\triangle OHN$

(NOTABLE $37^\circ - 53^\circ$)

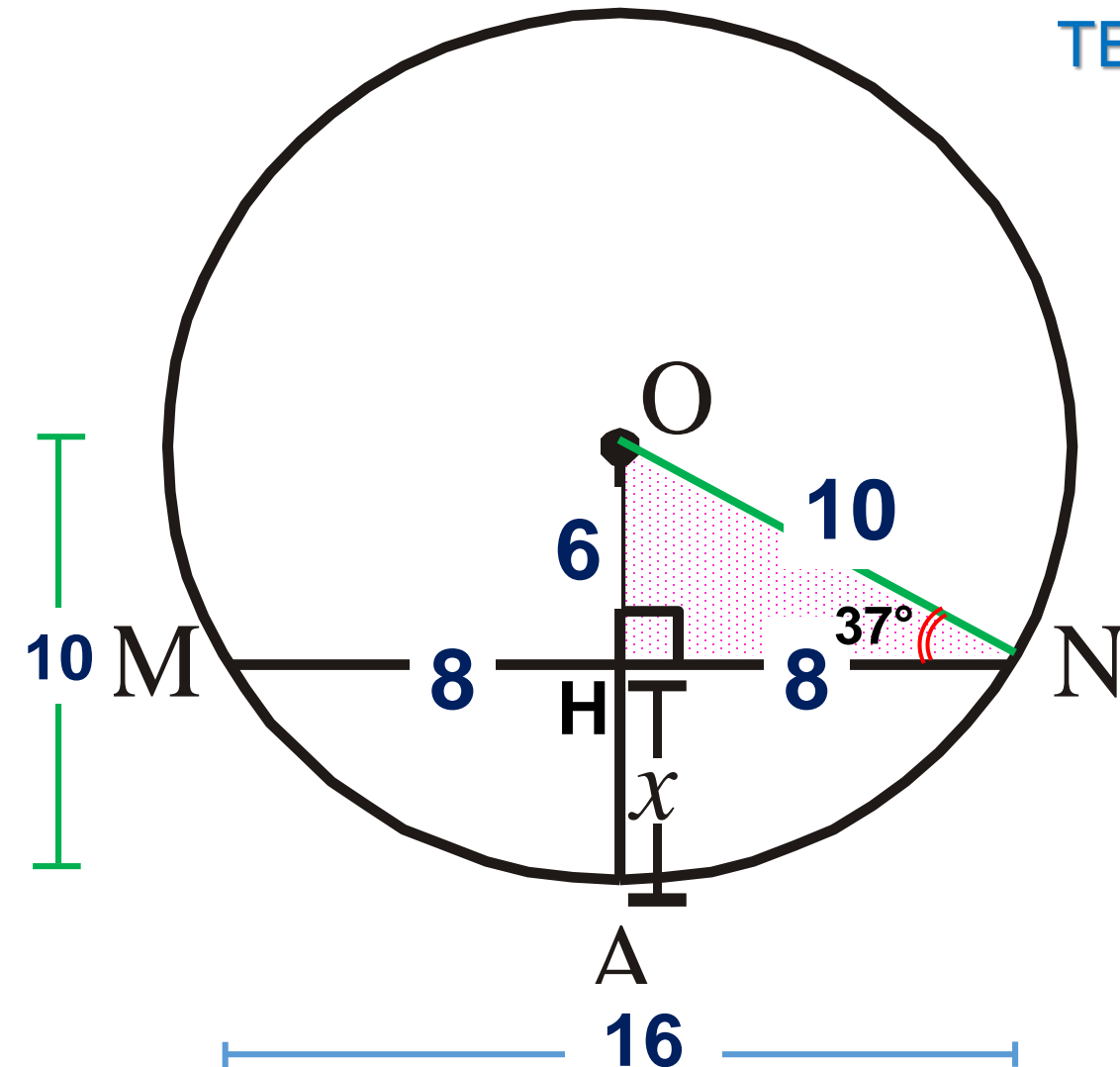


$OH = 6$

En \overline{OA} : $OA = OH + HA$

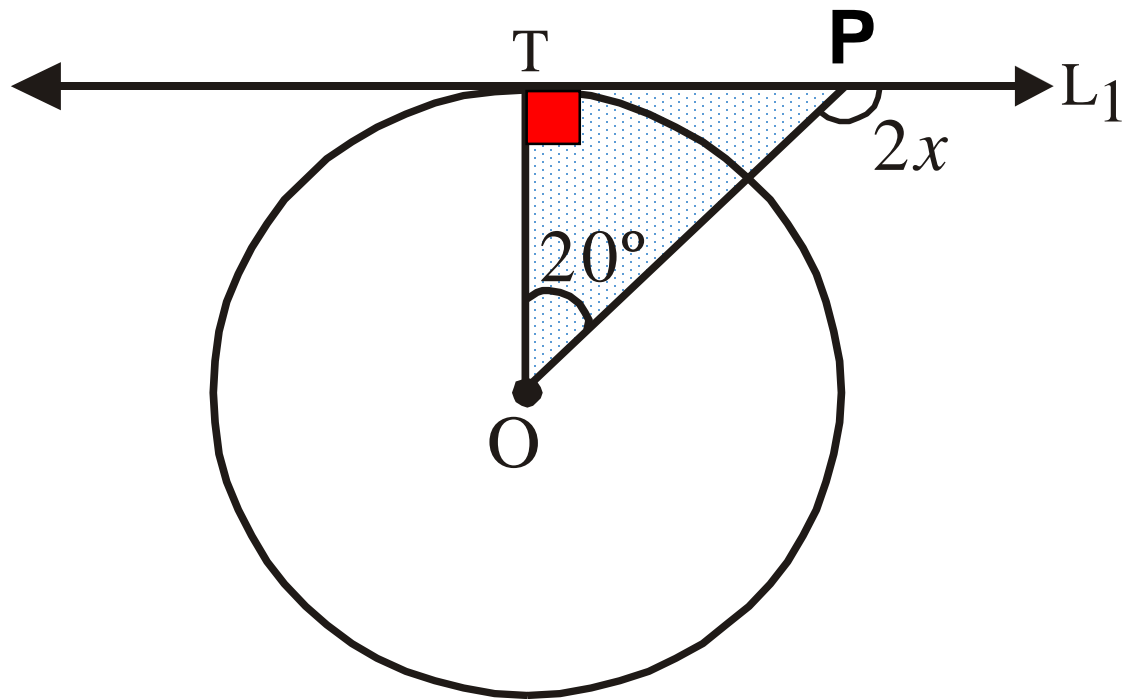
$$10 = 6 + x$$

$$X = 4u$$

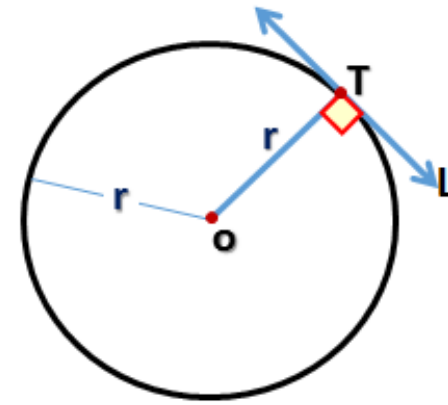




6. Si $\overleftrightarrow{L_1}$ es tangente a la circunferencia en T, calcular: x (O es centro).

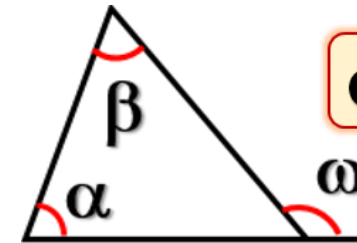


TEOREMA



En $\triangle OTP$

(Ángulo externo)



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

$$2x = 90^\circ + 20^\circ$$

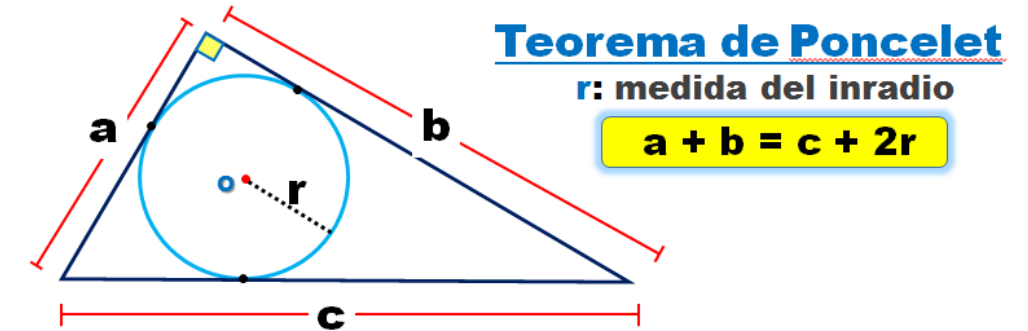
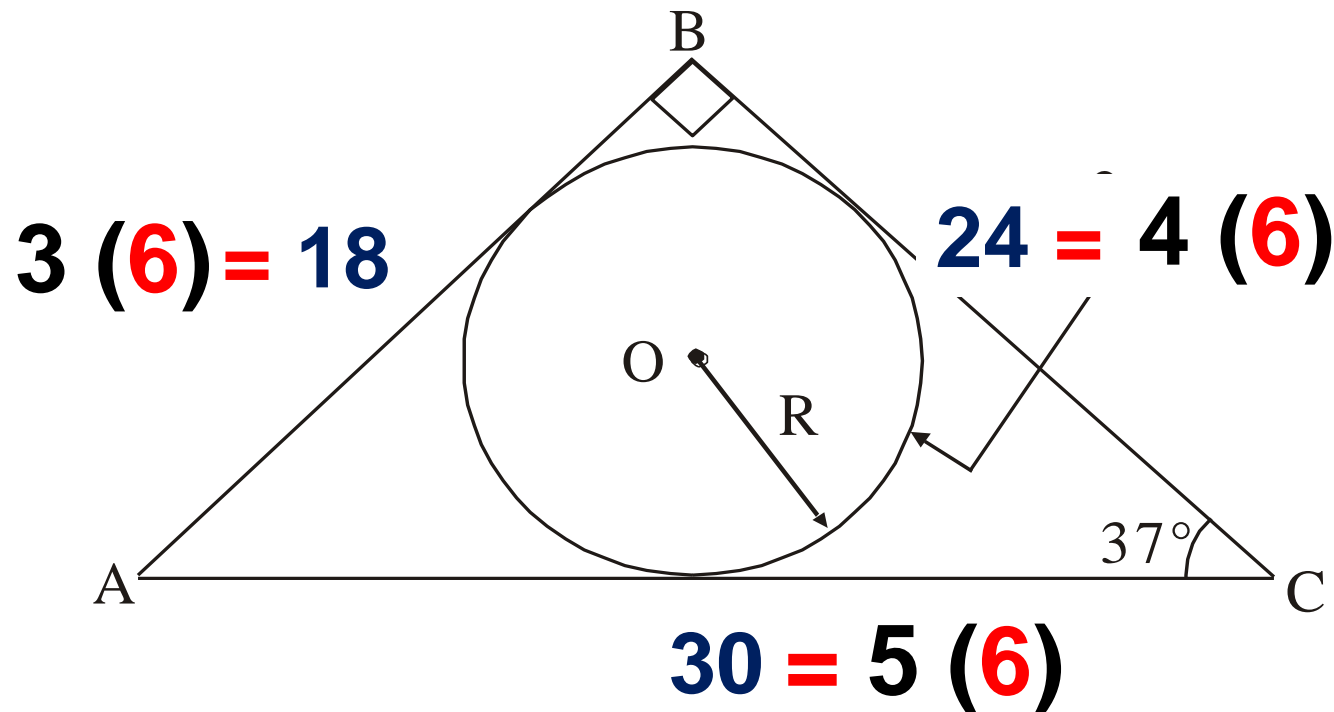
$$2x = 110^\circ$$

$$x = 55^\circ$$



7. En la figura se tiene una circunferencia inscrita en el triángulo rectángulo ABC cuya hipotenusa mide 30. Calcule R.

$\triangle ABC$ (NOTABLE $37^\circ - 53^\circ$)



Teorema de Poncelet

r : medida del inradio

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



$$18 + 24 = 30 + 2R$$

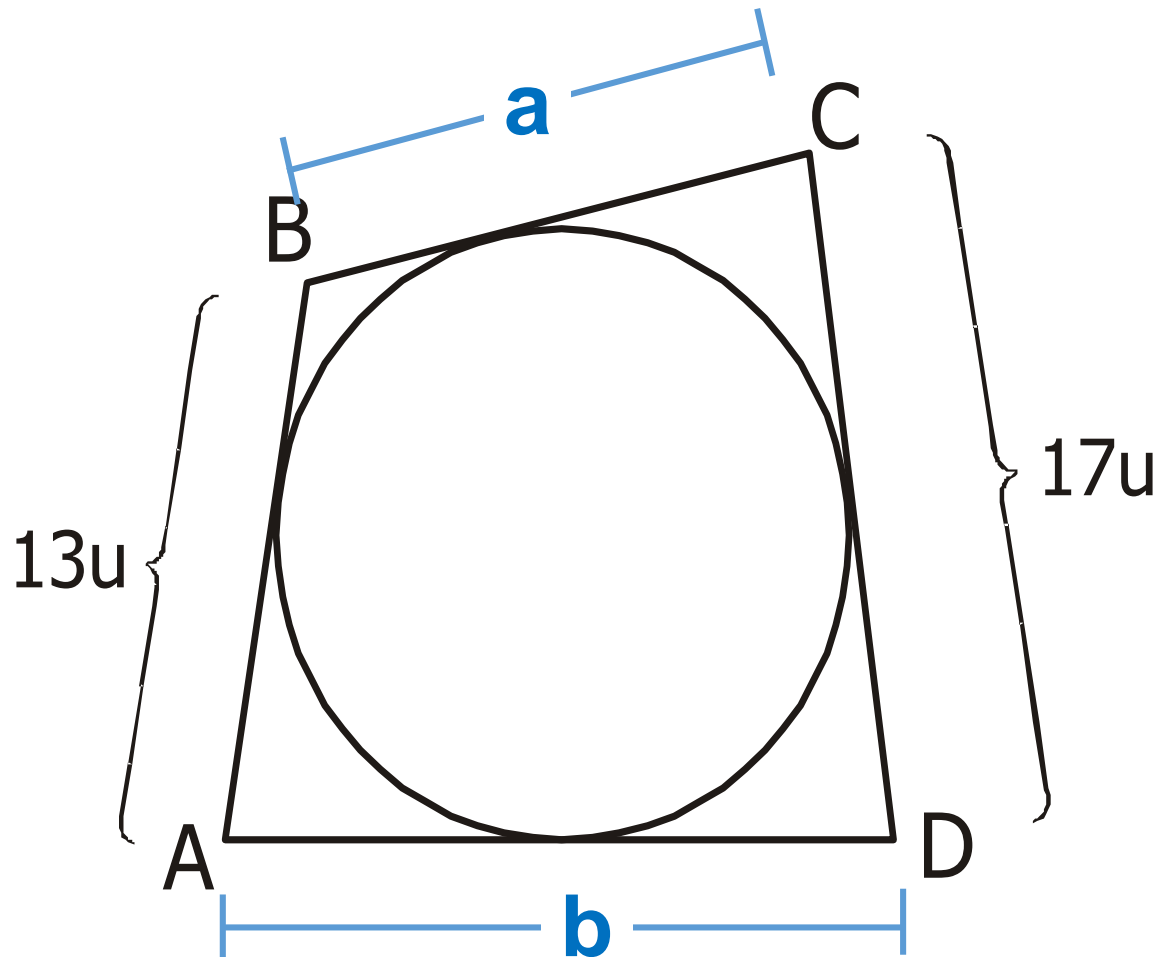
$$42 = 30 + 2R$$

$$12 = 2R$$

$$R = 6$$

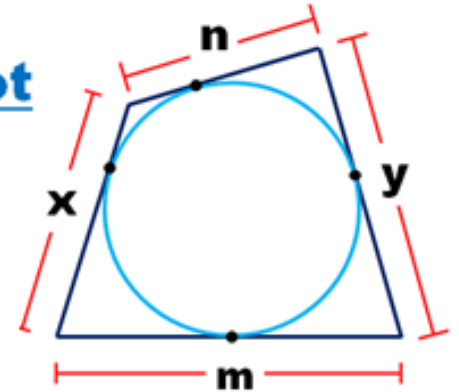


9. En la figura, calcular el perímetro del cuadrilátero ABCD.



Teorema de Pitot

$$x + y = m + n$$



$$a + b = 13 + 17$$

$$a + b = 30$$

Perímetro $2 p_{\square ABCD} = 13 + 17 + \underbrace{a + b}_{= 30}$

$$= 13 + 17 + 30$$

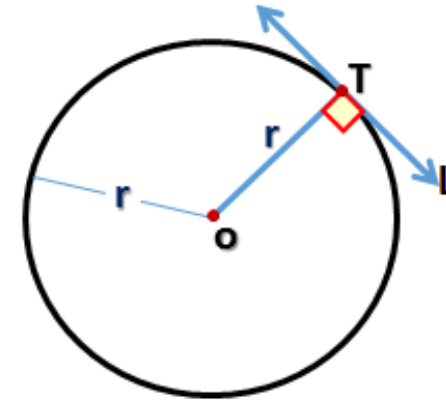
$$2 p_{\square ABCD} = 60u$$



10. Si T es punto de tangencia, halle el valor de x

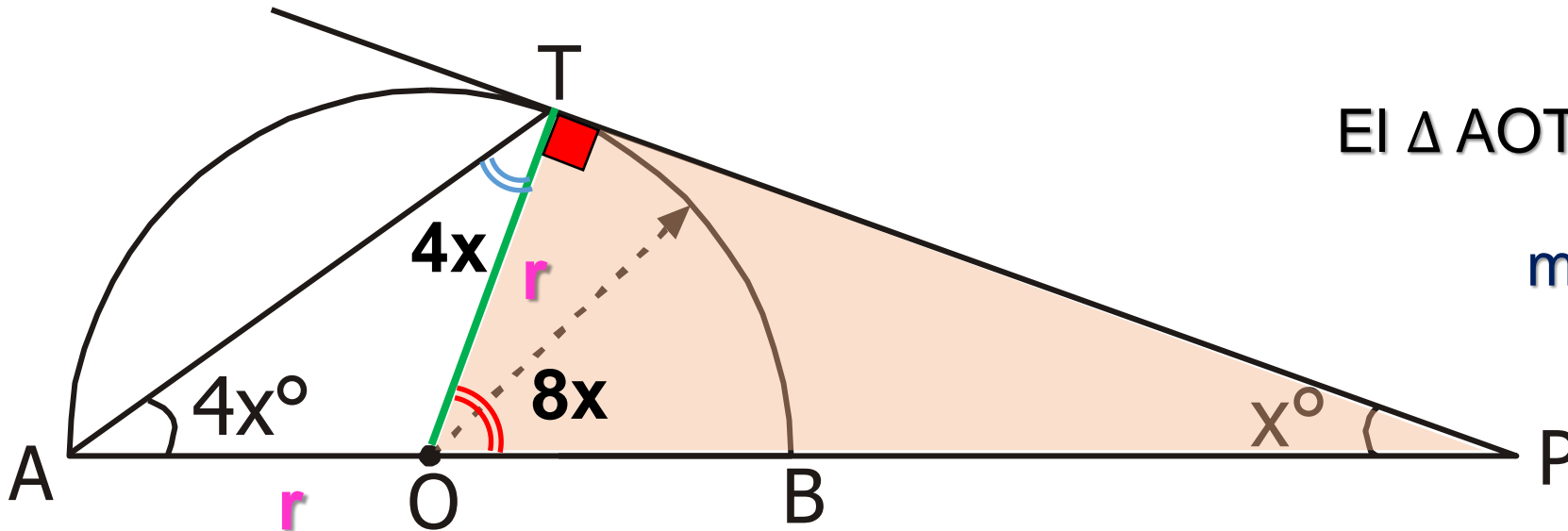
- Se traza \overline{OT}

TEOREMA



El $\triangle AOT$: (Isósceles)

$$m \angle TAO = m \angle ATO = 4x$$



En $\triangle OTP$:

$$\begin{aligned} 8x + x &= 90^\circ \\ 9x &= 90^\circ \end{aligned}$$

$$x = 10^\circ$$