GEOMETRÌA

Tomo 6

1 st

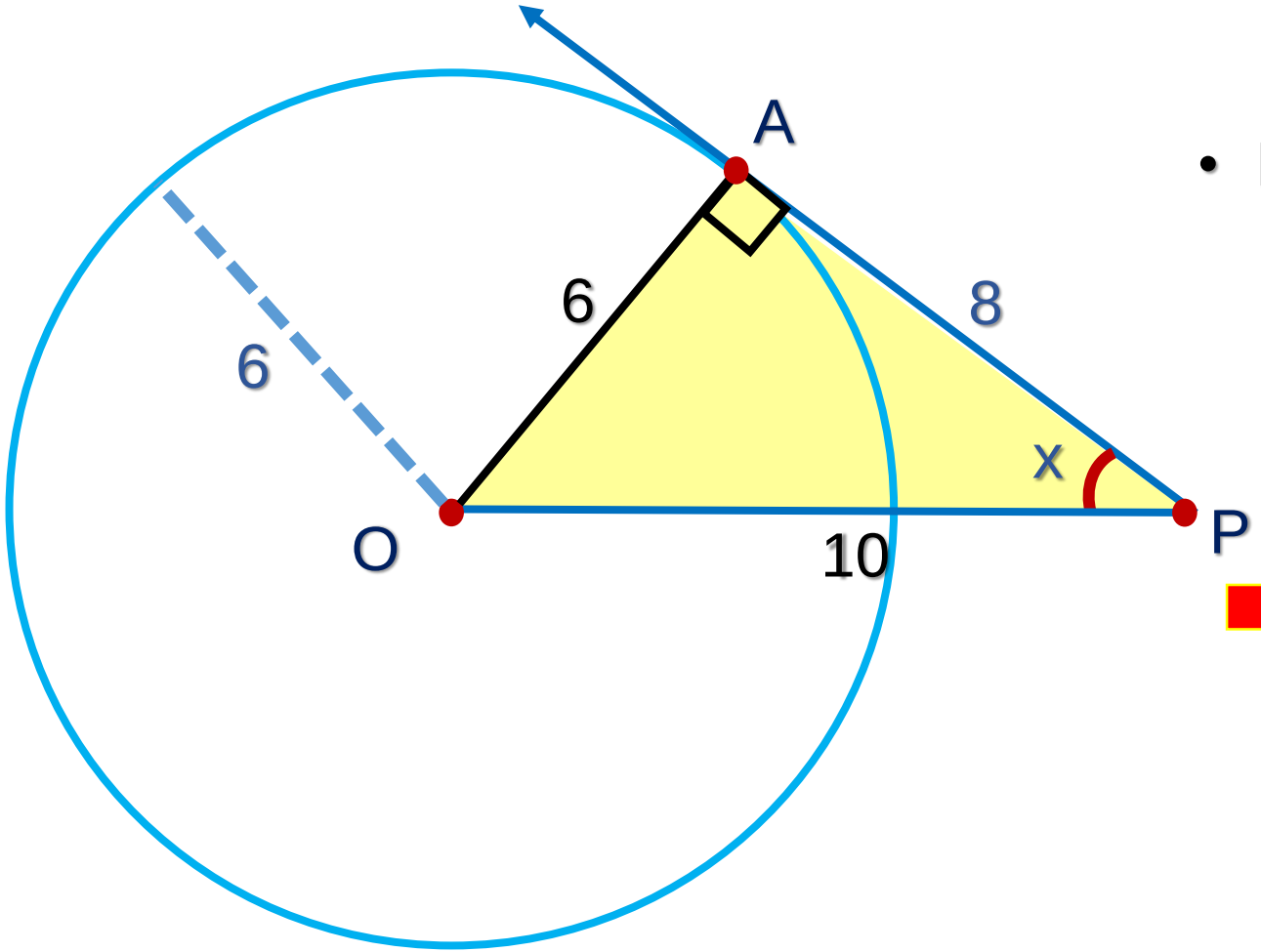
Secondary

ASESORÌA

SACO OLIVEROS

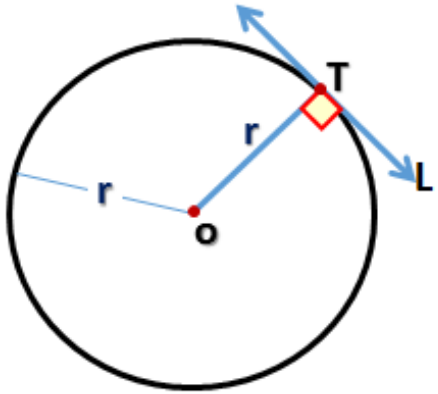
1. Desde un punto exterior P a una circunferencia se traza la tangente $\overline{PA}$. Si O es el centro, el radio mide 6m y PA = 8m, halle m<APO.

Resolución



Pide = m ∢APO = x

- Por Teorema



Se traza $\overline{OA}$

OA = 6

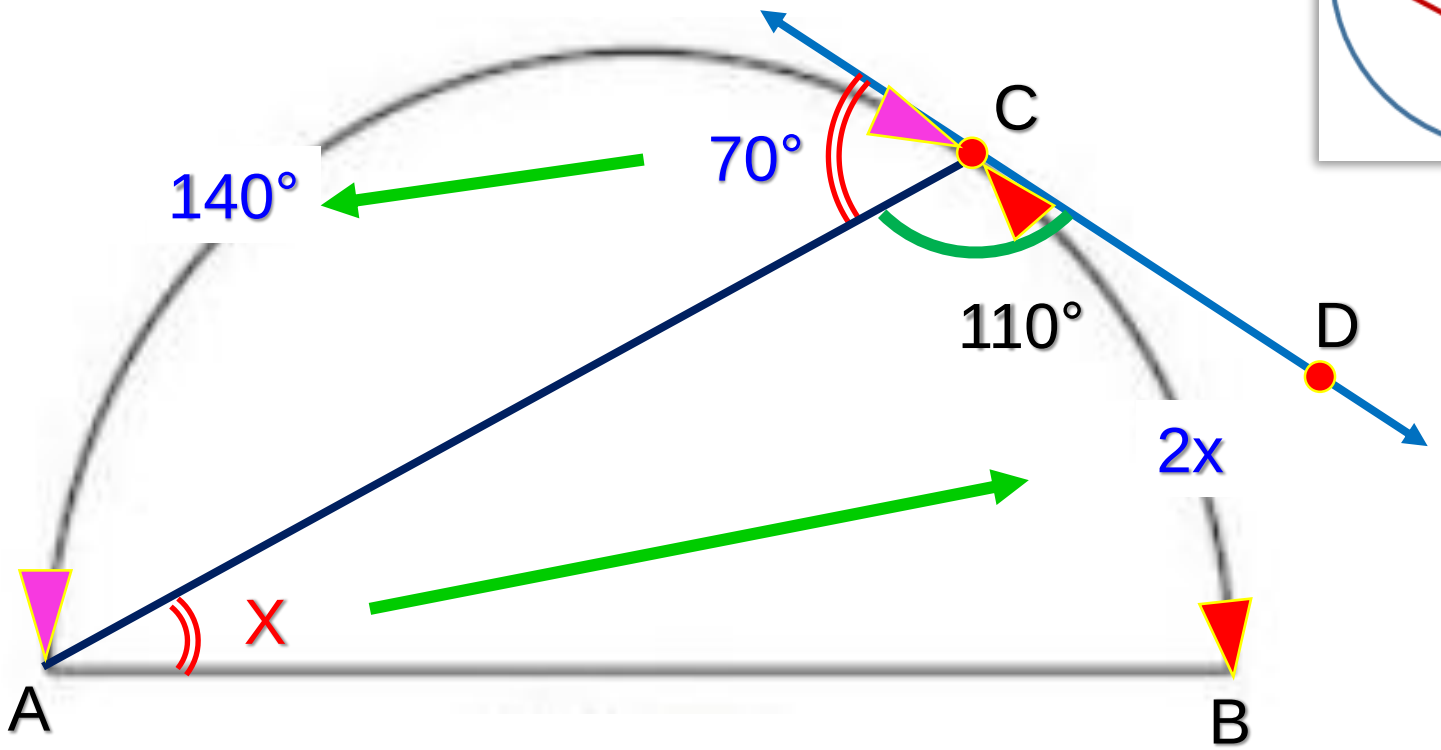
Por notable

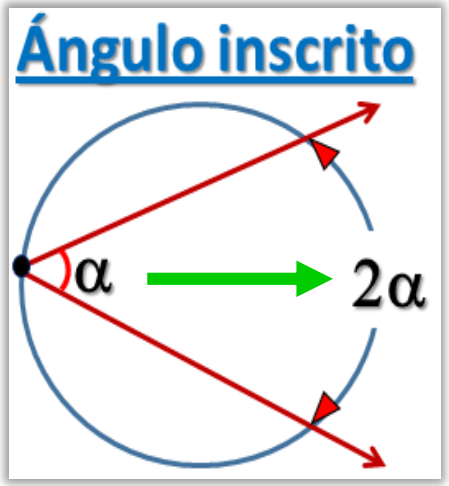
x = 37°

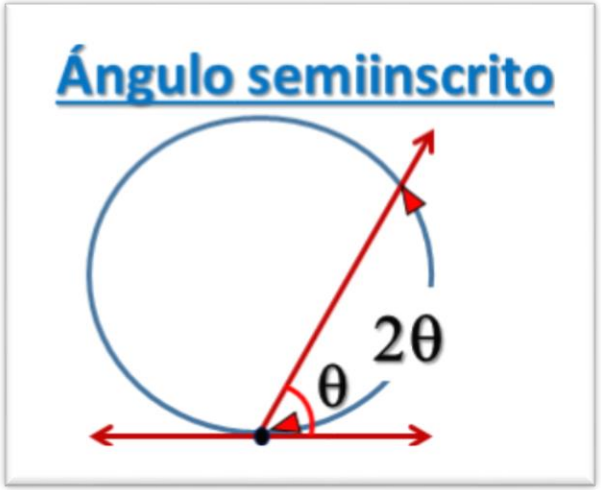
2. En una semicircunferencia de diámetro $\overline{AB}$ se ubica un punto C, luego se traza la tangente $\overline{CD}$. Si m<ACD = 110°, halle m<CAB.

Resolución

Pide $m\measuredangle CAB = x$







$\overline{AB}$ DIÁMETRO

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

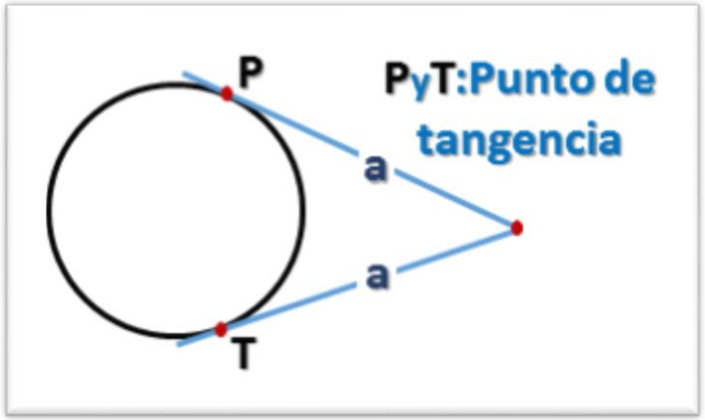
$$180° = 140° + 2X$$

$$x = 20°$$

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

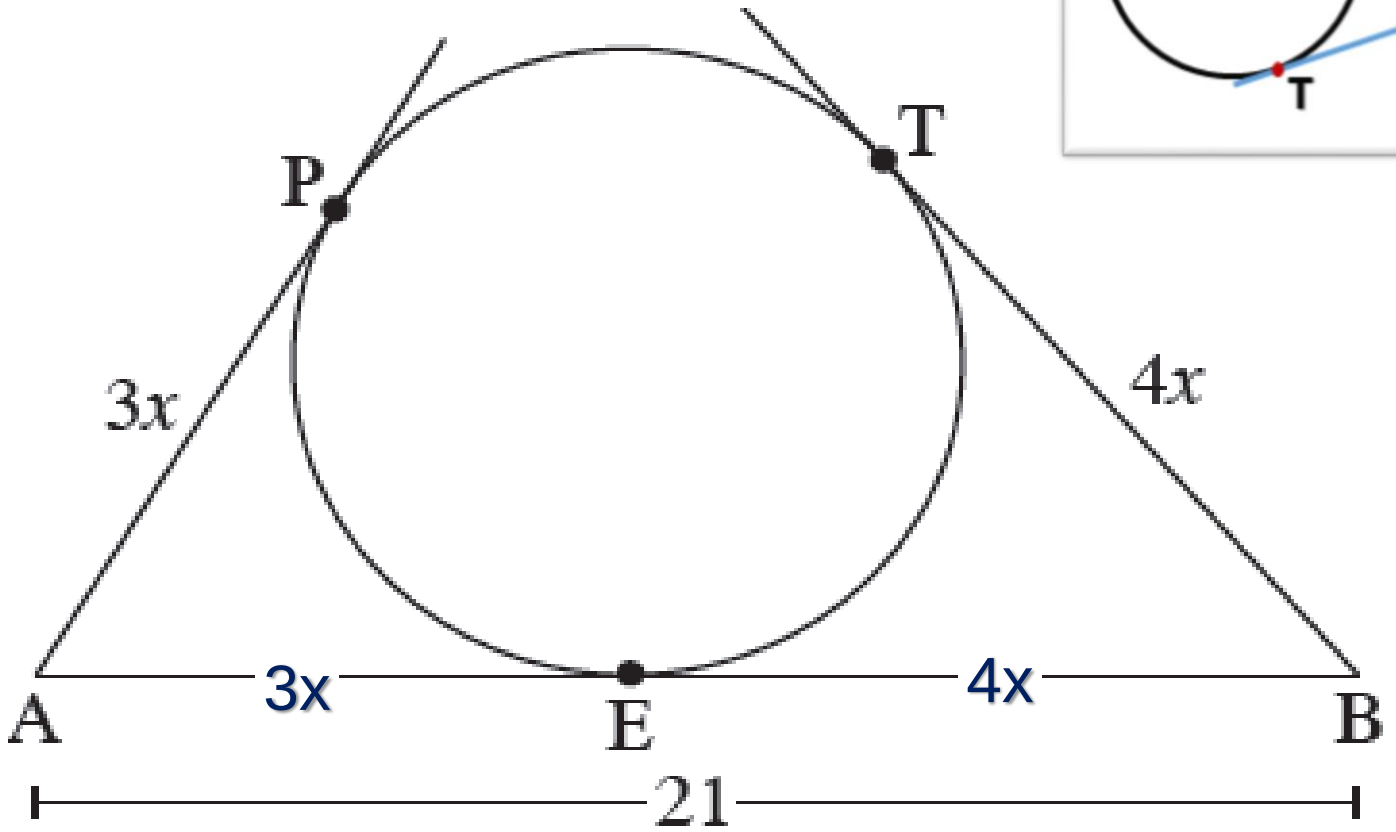
Resolución

Pide = x



Por Teorema

- AP = AE = 3x
- TB = EB = 4x



- En $\overline{AB}$

AB = AE + EB

21 = 3x + 4x

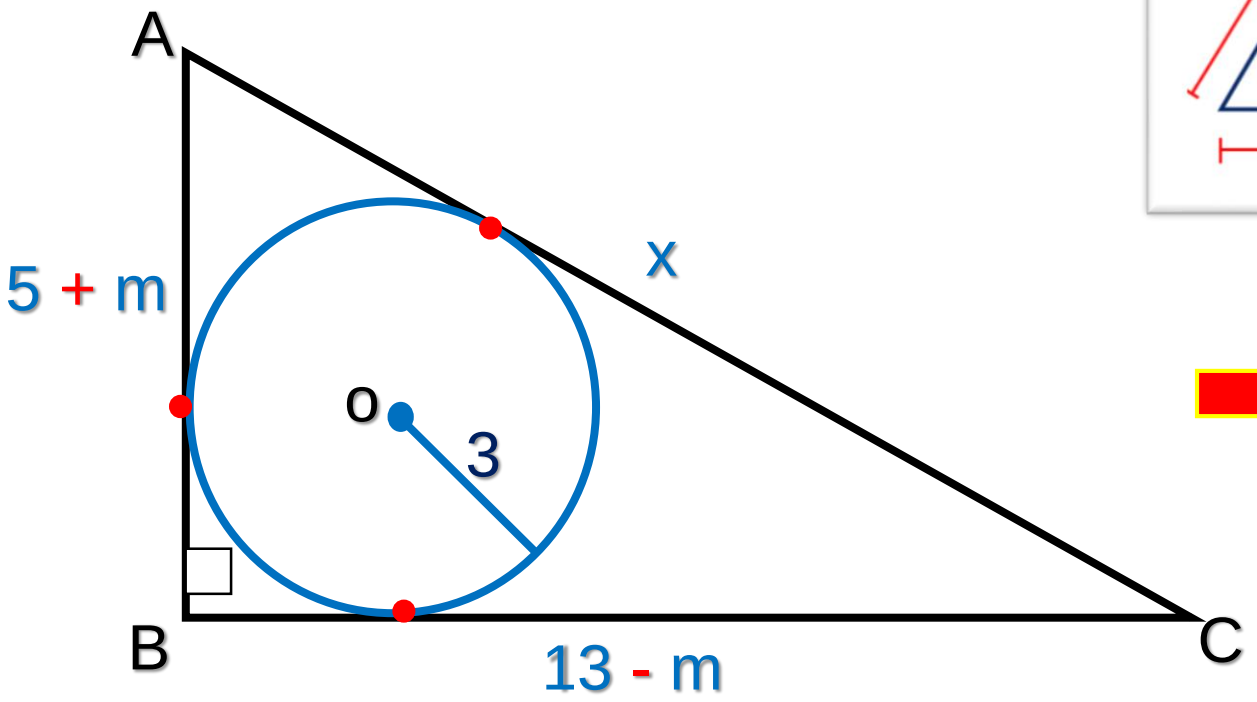
21 = 7 x

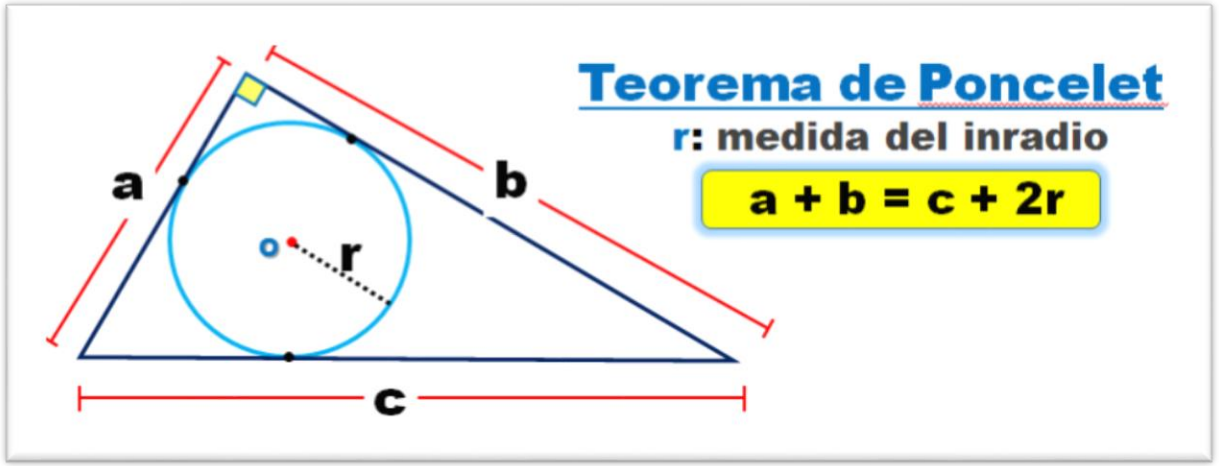
x = 3

4. En la figura, O es el centro de la circunferencia inscrita, halle el valor de x.

Resolución

Piden : x





$5 + \cancel{m} + 13 - \cancel{m} = x + 2\,(3)$

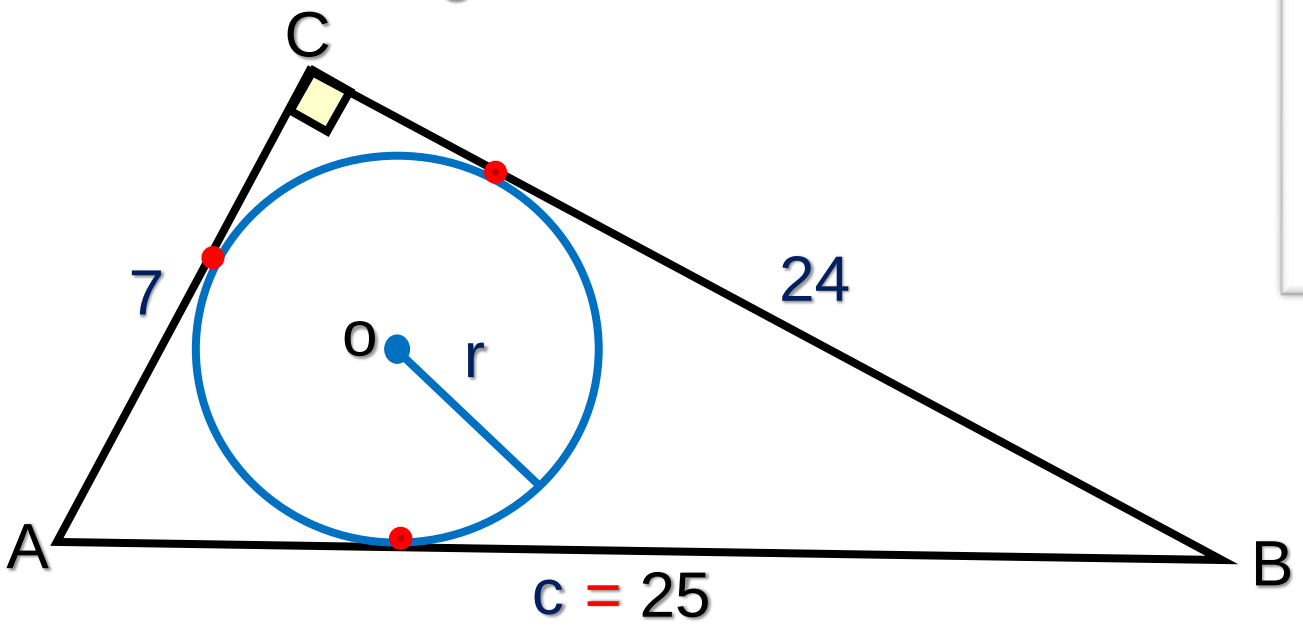
$18 = x + 6$

$x = 12$

5. Los catetos de un triángulo miden 7 m y 24 m. Halle la longitud del inradio.

Resolución

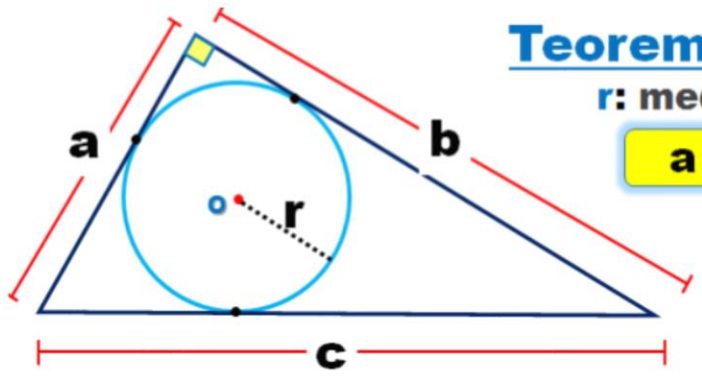
Piden: la longitud del inradio = r



Teorema de Poncelet

r: medida del inradio

$a + b = c + 2r$



Teorema de Pitágoras

$c^2 = 7^2 + 24^2$ ➡ $c = 25$

$7 + 24 = 25 + 2r$

$31 = 25 + 2r$

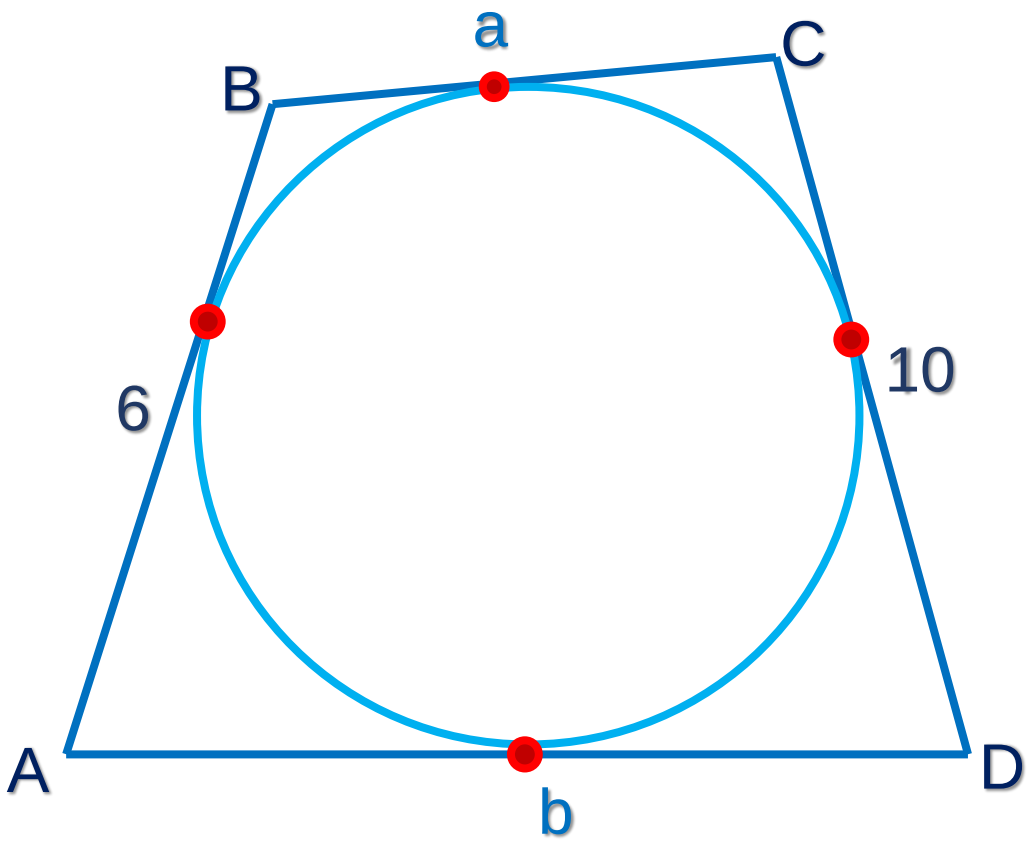
$6 = 2r$

$r = 3$ m

6. En la figura, halle el perímetro del cuadrilátero ABCD.

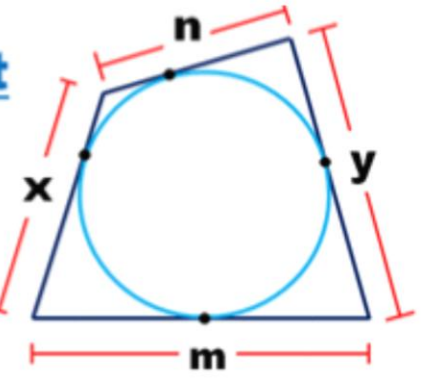
Resolución

Piden: perímetro de ABCD = $2p_{(\square ABCD)}$



Teorema de Pitot

$x + y = m + n$



$$a + b = 6 + 10$$

$$a + b = 16$$

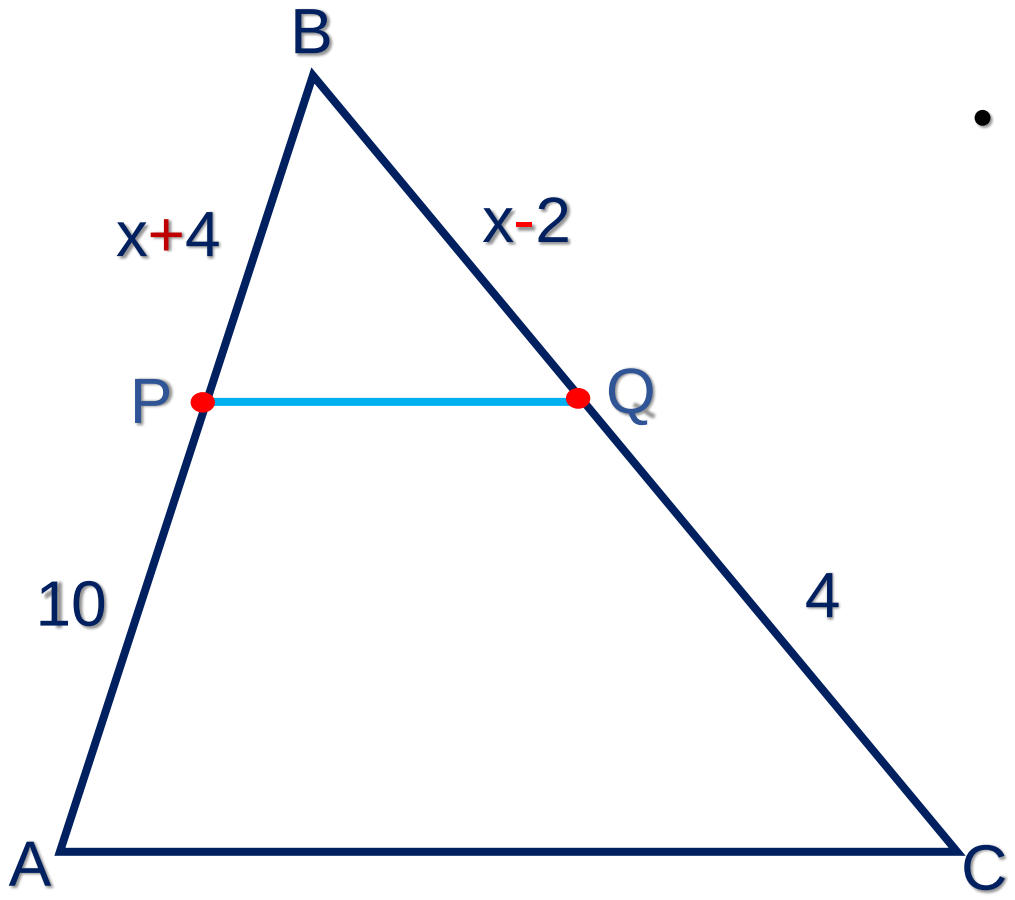
$$2p_{(\square ABCD)} = 6 + 10 + \underbrace{a + b}$$

$$6 + 10 + 16$$

$$2p_{(\square ABCD)} = 32$$

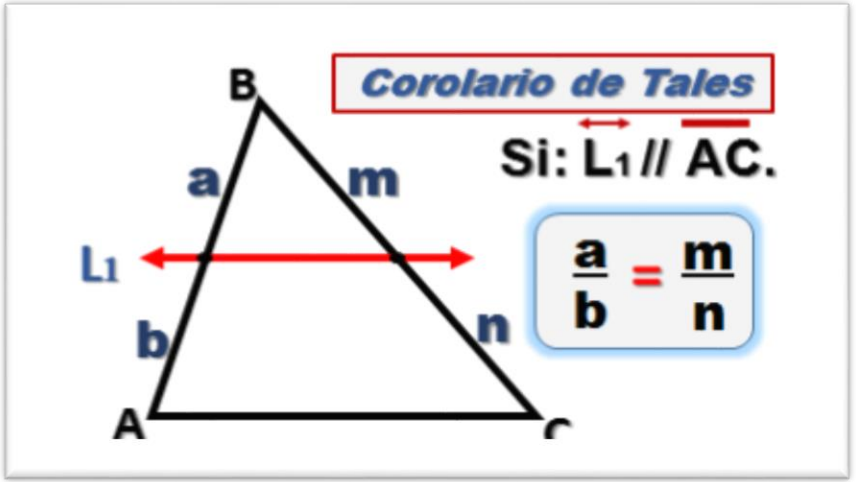
7. En un triángulo ABC, P pertenece a $\overline{AB}$ y Q pertenece a $\overline{BC}$. Si $\overline{PQ}$ // $\overline{AC}$, AP = 10 , PB = x + 4, QB = x - 2 y QC = 4, halle x.

Resolución



Piden: x

- Si $\overline{PQ}$ // $\overline{AC}$



$$\frac{x+4}{10} = \frac{x-2}{4}$$

$$4x + 16 = 10x - 20$$

$$36 = 6x$$

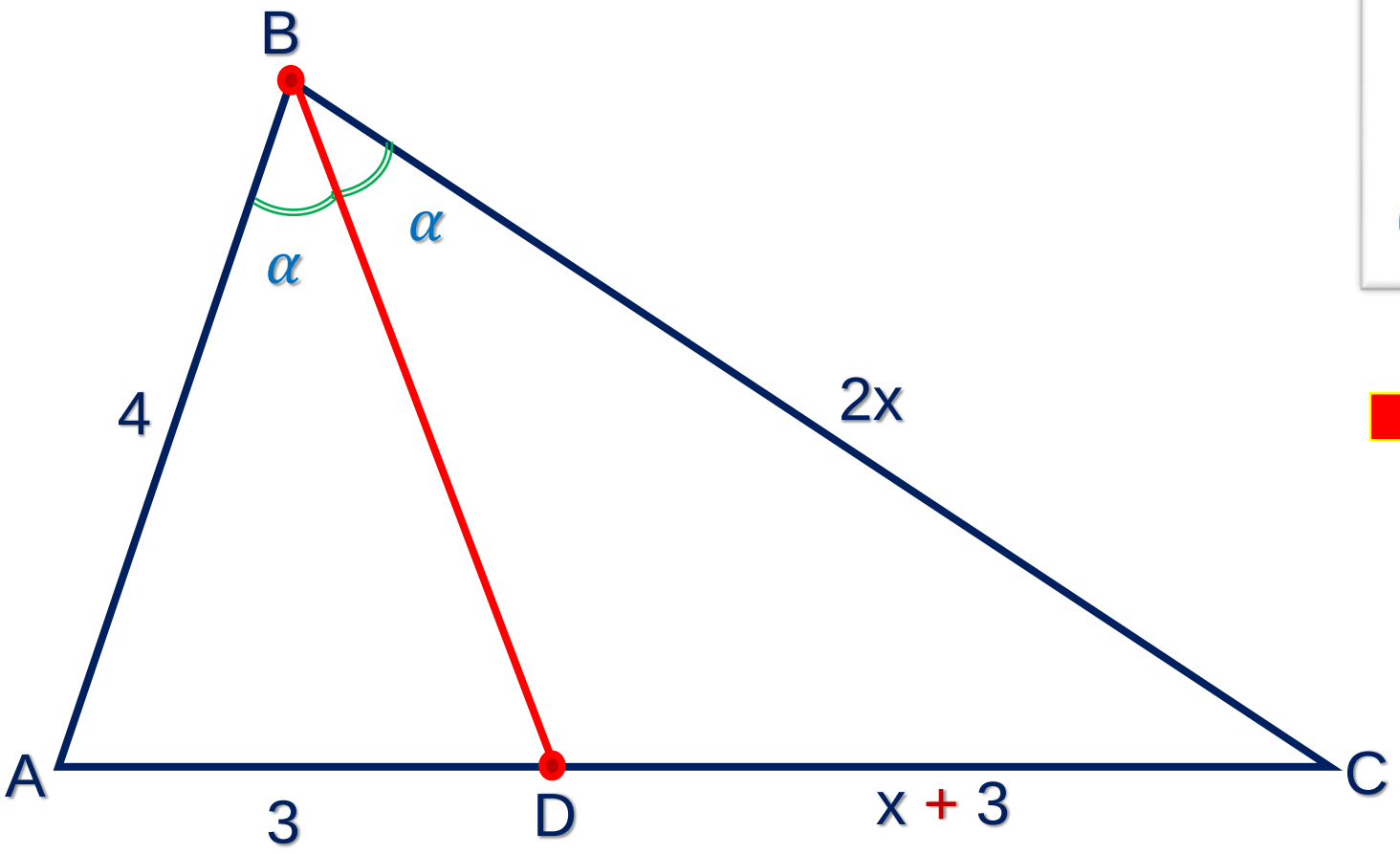
x = 6

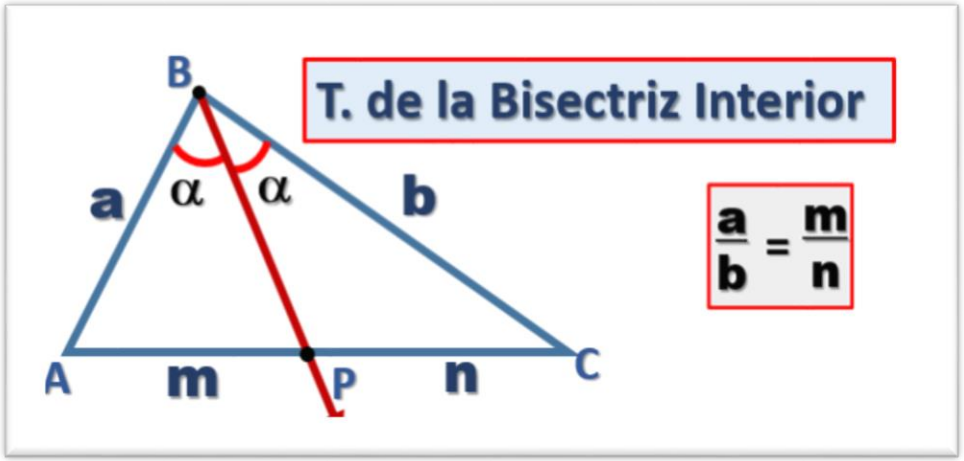
8. En el gráfico , halle el valor de x.

Si $\overline{BD}$: bisectriz interior

Resolución

Piden: x





$$\frac{\cancel{4}^{2}}{\cancel{2x}_{1}} = \frac{3}{x+3}$$

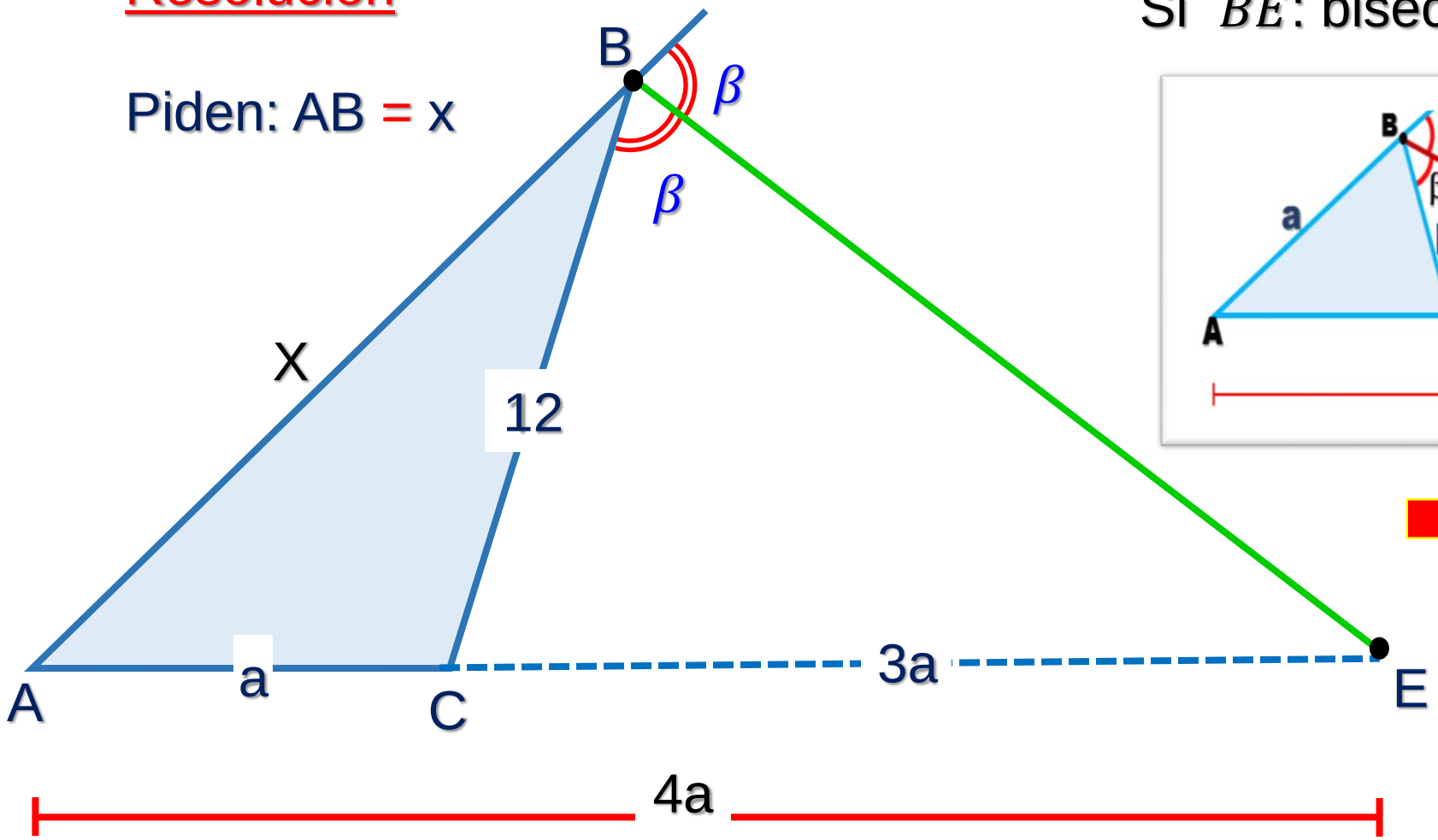
$$2x + 6 = 3x$$

$$6 = x$$

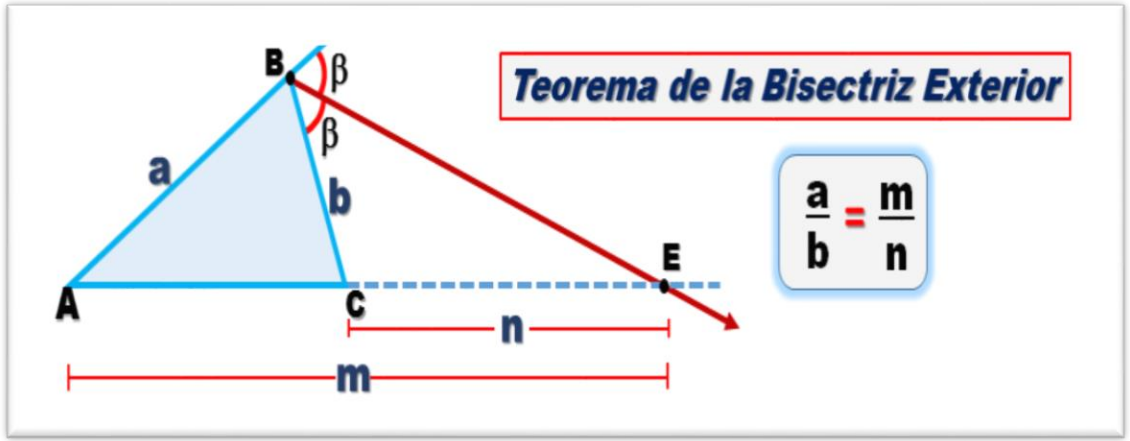
9. En el triángulo ABC se traza la bisectriz exterior $\overline{BE}$, donde E ∈ a la prolongación de $\overline{AC}$. Si BC = 12m y CE = 3(AC), halle AB.

Resolución

Piden: AB = x



Si $\overline{BE}$: bisectriz exterior



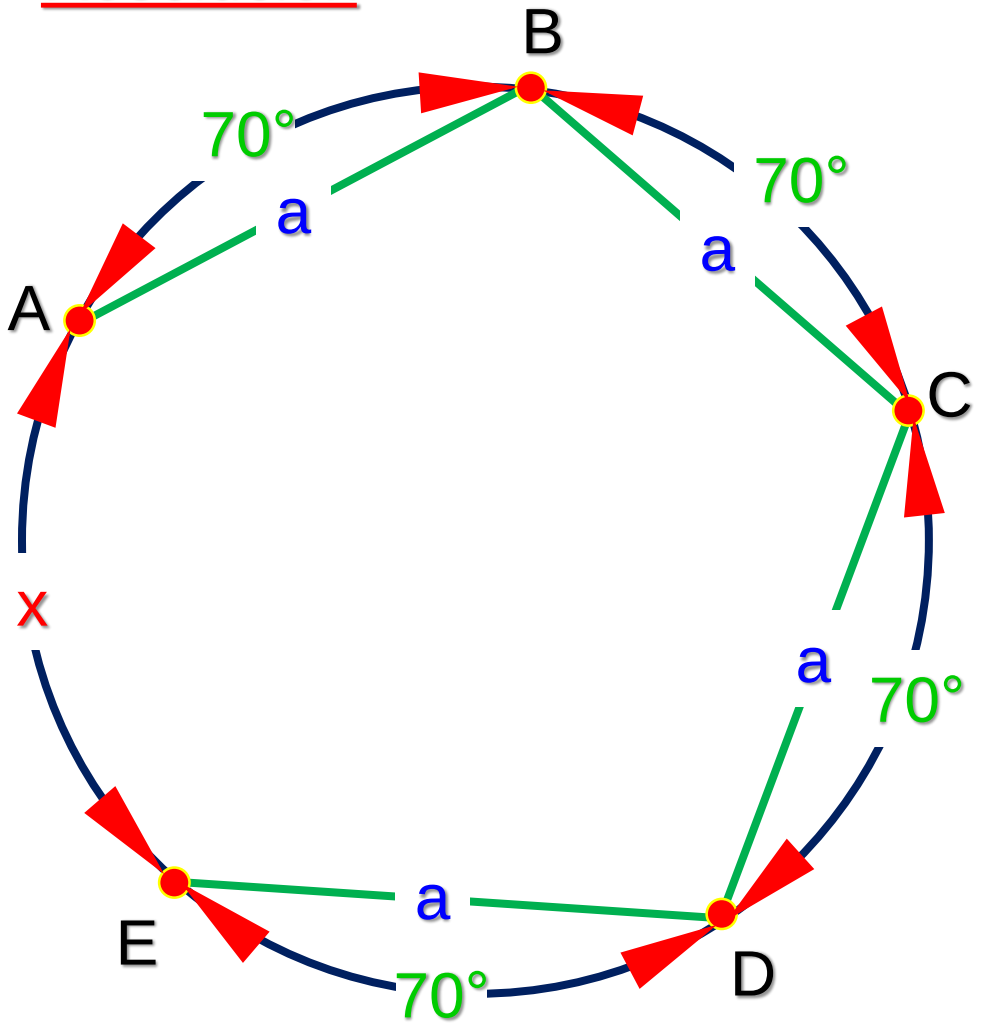
$$\frac{x}{12} = \frac{4\,\cancel{a}}{3\,\cancel{a}}$$

$$3x = 48$$

x = 16

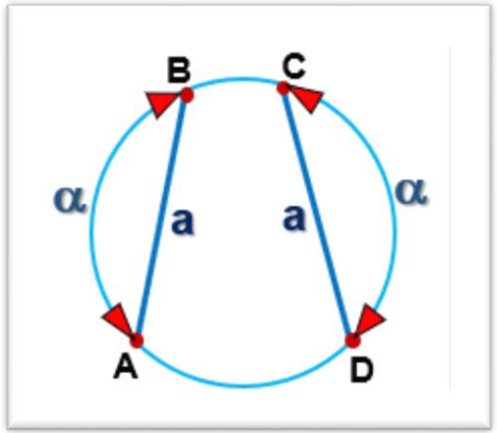
10. En una circunferencia se ubican los puntos A, B, C, D y E. Si AB=BC=CD=DE y $m\overset{\frown}{AB}=70°$, halle $m\overset{\frown}{AE}$.

Resolución



Piden: $m\overset{\frown}{AE} = x$

Si: $AB = PQ \Leftrightarrow m\overset{\frown}{AB} = m\overset{\frown}{PQ}$



En la circunferencia

$$70° + 70° + 70° + 70° + x = 360°$$

$$280° + x = 360°$$

$$x = 80°$$