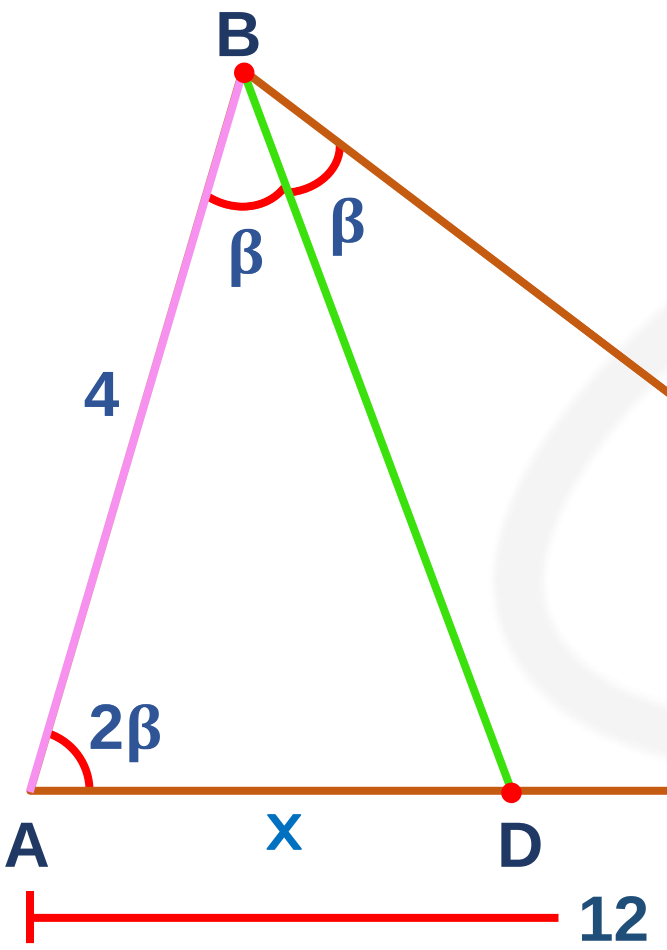
# GEOMETRY

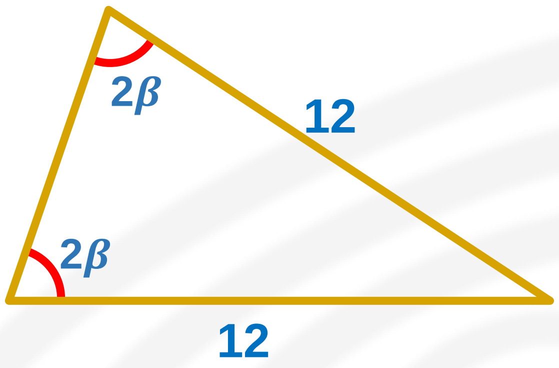
## 5° DE SECUNDARIA

RETROALIMENTACIÓN

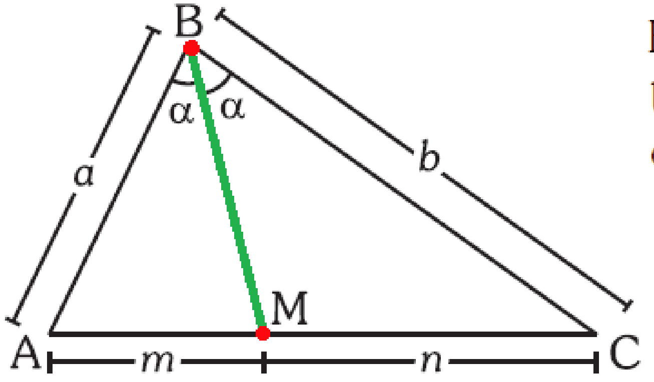
ASOCIACIÓN EDUCATIVA
SACO OLIVEROS

**1. En un triángulo ABC, se traza la bisectriz interior $\overline{BD}$. AB = 4, BC = 12 y m∡BAD = m∡ABC. Calcule AD.**




**Teorema de la bisectriz interior**




En el ΔABC, $\overline{BM}$ es bisectriz interior, se demuestra

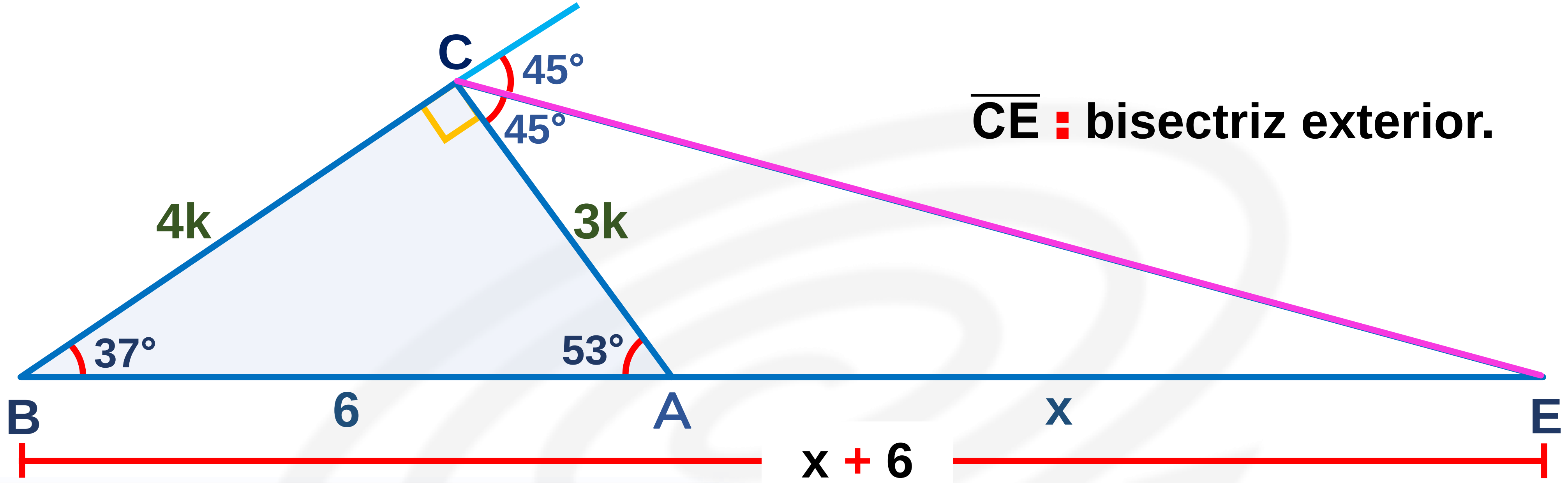
$$\boxed{\frac{a}{b} = \frac{m}{n}}$$

$$\frac{\cancel{4}^{\,1}}{\cancel{12}_{\,3}} = \frac{x}{12 - x} \Rightarrow 12 - x = 3x$$

$$12 = 4x$$

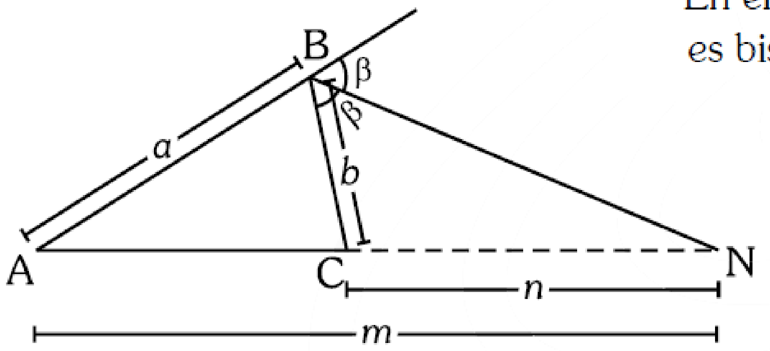
$$\boxed{x = 3}$$

## 2. En la figura, AB = 6, calcule AE.




$\overline{CE}$ : bisectriz exterior.

**Teorema de la bisectriz exterior**




En el $\triangle ABC$, $\overline{BN}$ es bisectriz exterior.

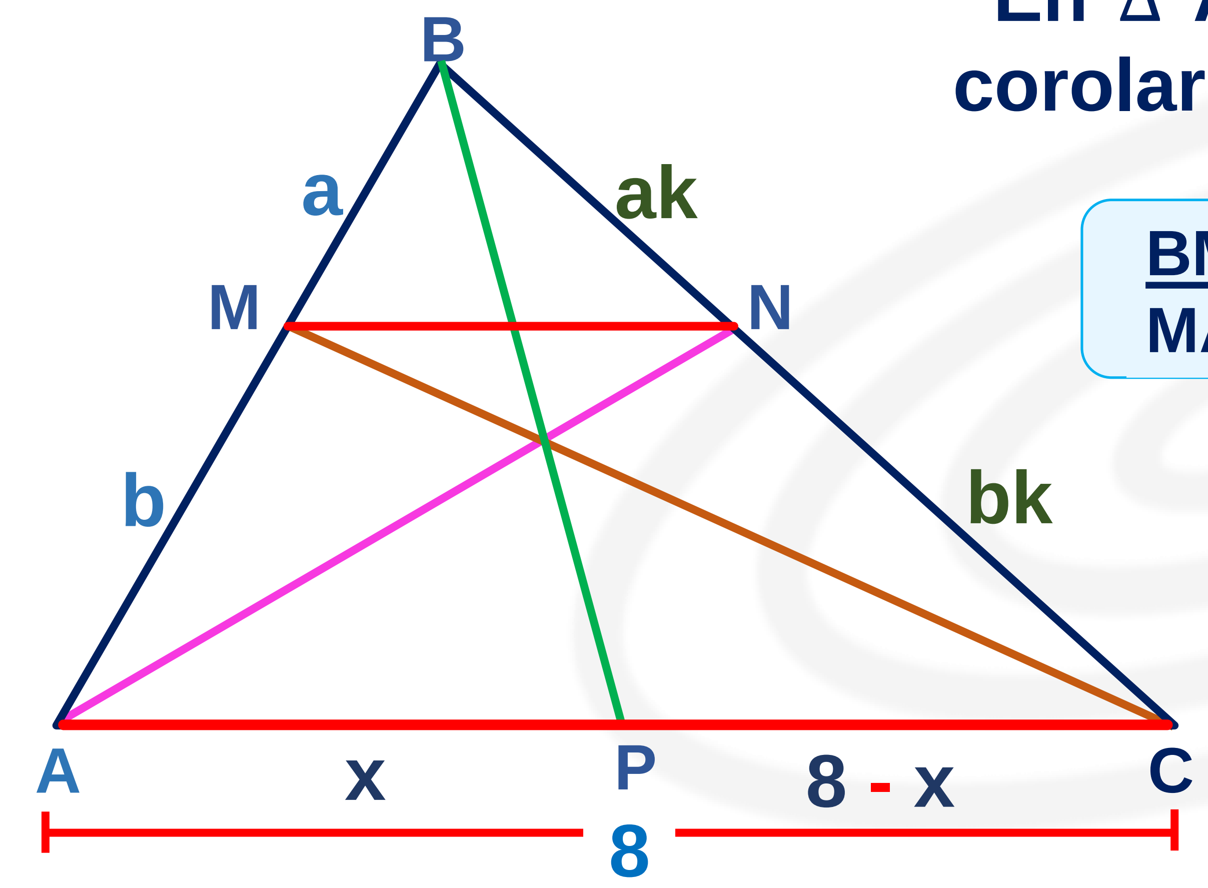
$$\boxed{\frac{a}{b} = \frac{m}{n}}$$

$$\frac{4\cancel{k}}{3\cancel{k}} = \frac{x + 6}{x}$$

$$4x = 3x + 18$$

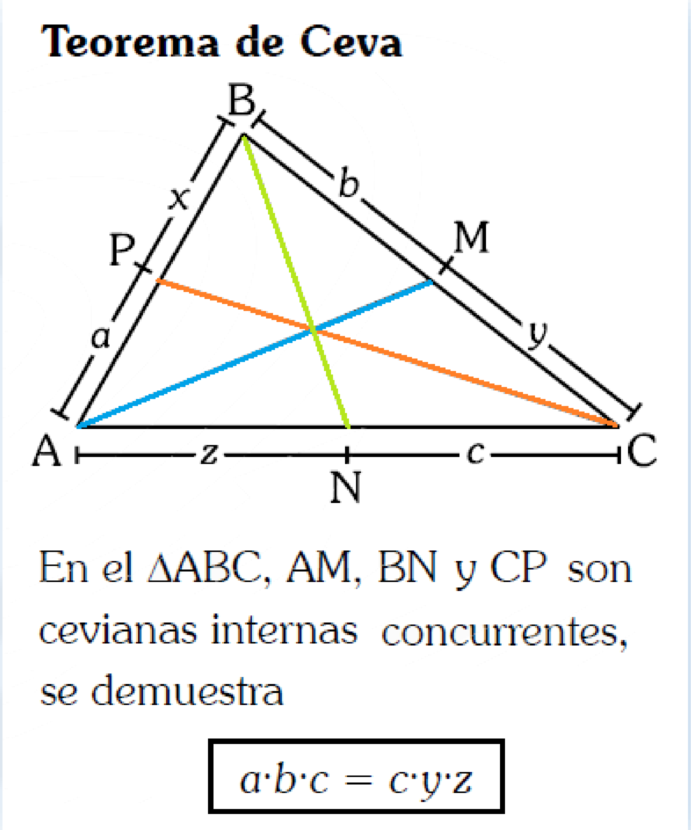
$$\boxed{x = 18}$$

## 3. En la figura, $\overline{MN} \parallel \overline{AC}$, calcule AP.




* En Δ ABC, por el corolario de Thales

$$\frac{BM}{MA} = \frac{BN}{NC}$$



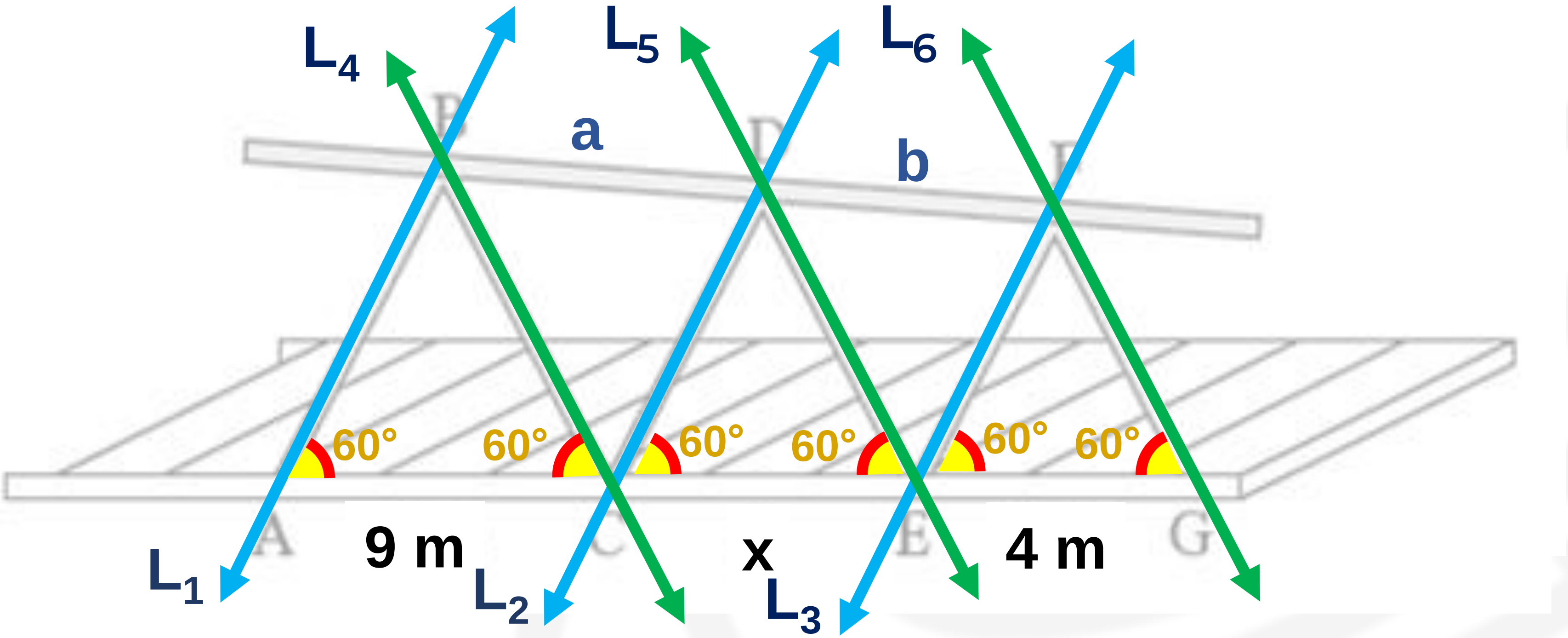

$$(\cancel{a})(\cancel{b}\cancel{k})(x) = (\cancel{b})(\cancel{a}\cancel{k})(8-x)$$

$$x = 8 - x$$

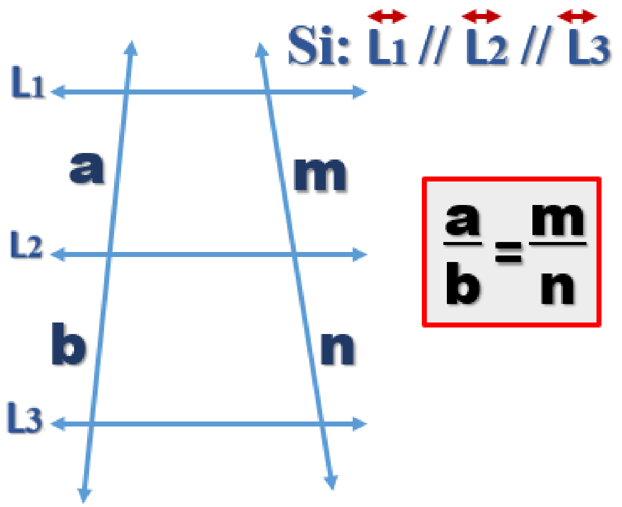
$$2x = 8$$

$$\boxed{x = 4}$$

## 4. Los triángulos ABC, CDE y EFG son equiláteros. Halle el valor de x.




**Teorema de Tales**




$$\frac{a}{b} = \frac{m}{n}$$

$\overleftrightarrow{L_1} \,//\, \overleftrightarrow{L_2} \,//\, \overleftrightarrow{L_3}$

$\overleftrightarrow{L_4} \,//\, \overleftrightarrow{L_5} \,//\, \overleftrightarrow{L_6}$

$\Rightarrow$ $\frac{a}{b} = \frac{9}{x}$ ........(1)

$\frac{a}{b} = \frac{x}{4}$ ........(2)

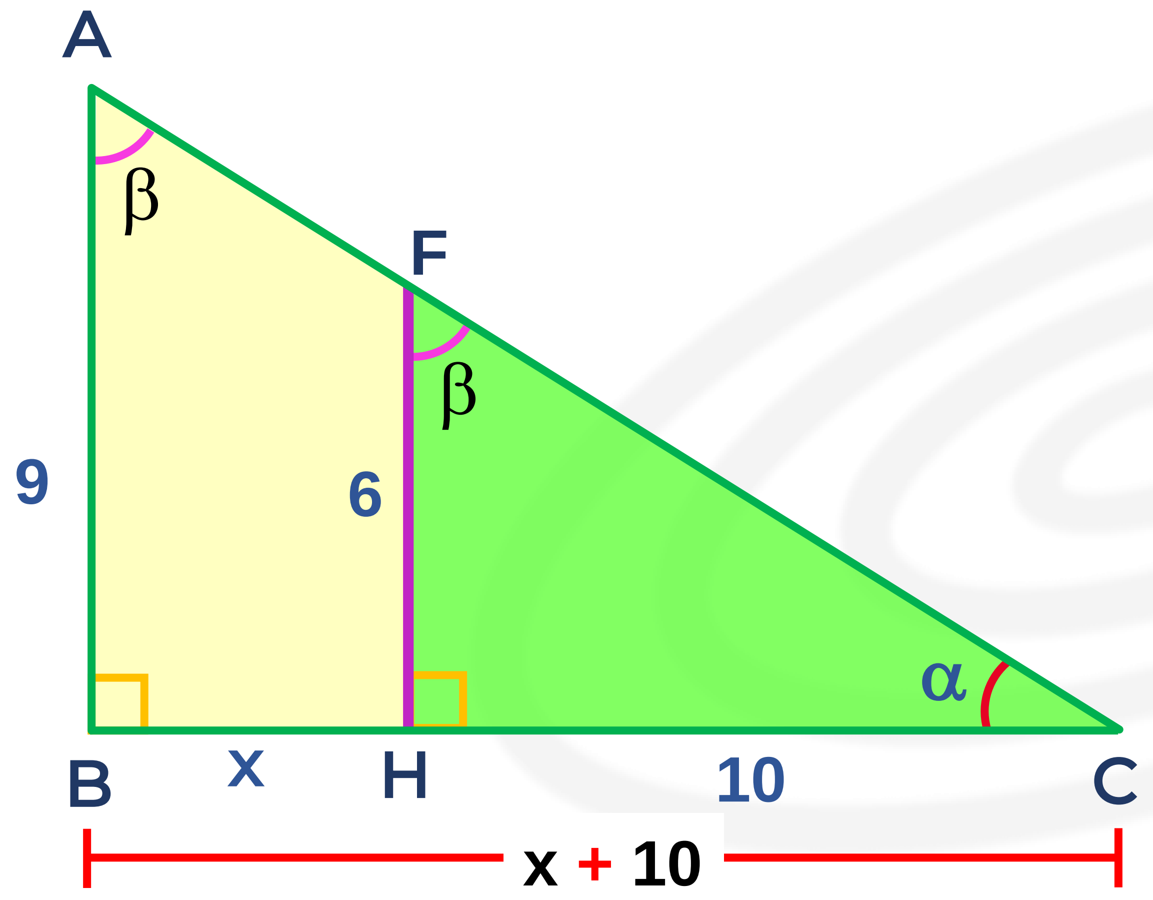
Igualando 1 y 2

$$\frac{9}{x} = \frac{x}{4}$$

$$36 = x^2$$

$$\boxed{x = 6 \text{ m}}$$

# 5. En la figura, halle el valor de x.




* Del gráfico $\overline{AB} \parallel \overline{FH}$

$$\boxed{\Delta\, FHC \sim \Delta\, ABC}$$

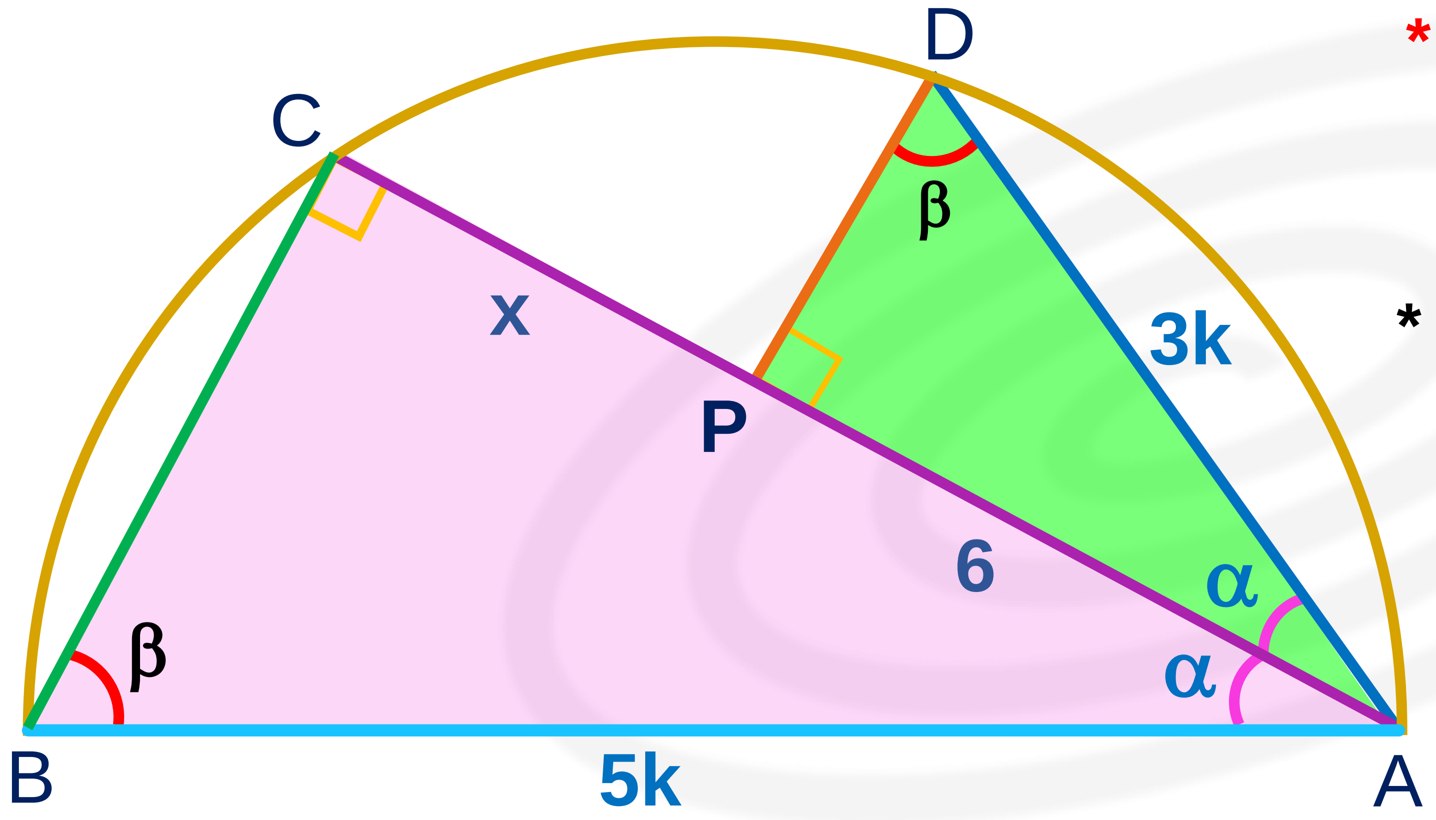
$$\frac{\cancel{6}^{\,2}}{\cancel{9}_{\,3}} = \frac{10}{x + 10}$$

$$2x + 20 = 30$$

$$2x = 10$$

$$\boxed{x = 5}$$

# 6. En la semicircunferencia, 3(AB) = 5(AD) y AP = 6. Calcule PC.




* 3(AB) = 5(AD)

$$\frac{AB}{5} = \frac{AD}{3} = K$$

AB = 5k

AD = 3k

* Trazamos la cuerda $\overline{BC}$

$\Delta$ ABC ~ $\Delta$ ADP

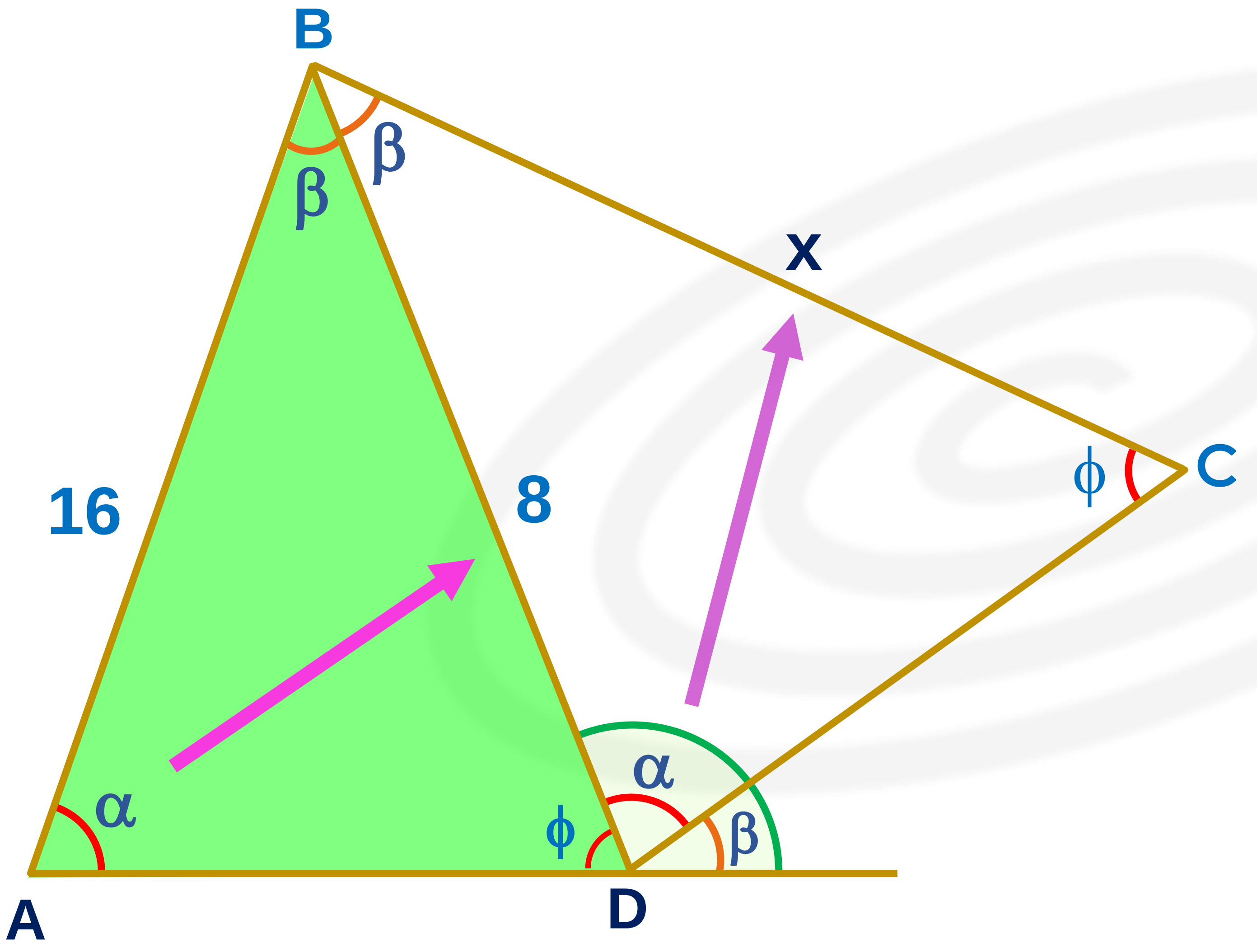
$$\frac{5\cancel{k}}{3\cancel{k}} = \frac{x+6}{6}$$

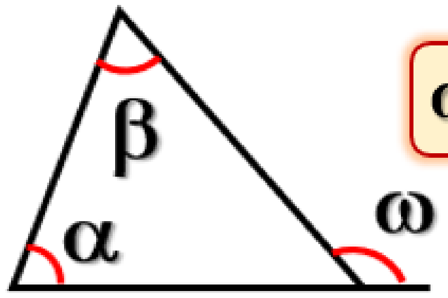
$30 = 3x + 18$

$12 = 3x$

$\boxed{x = 4}$

# 7. En la figura, halle el valor de x.




$\omega = \alpha + \beta$

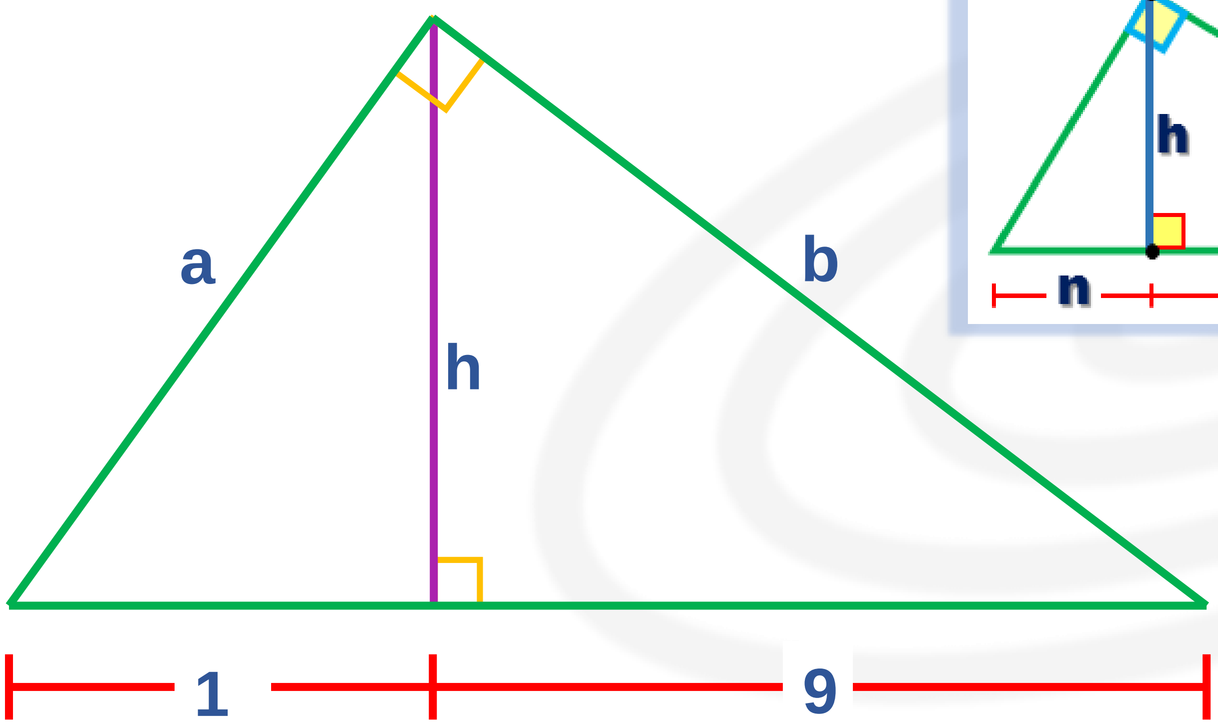
$\Delta\, ABD \sim \Delta\, DBC$

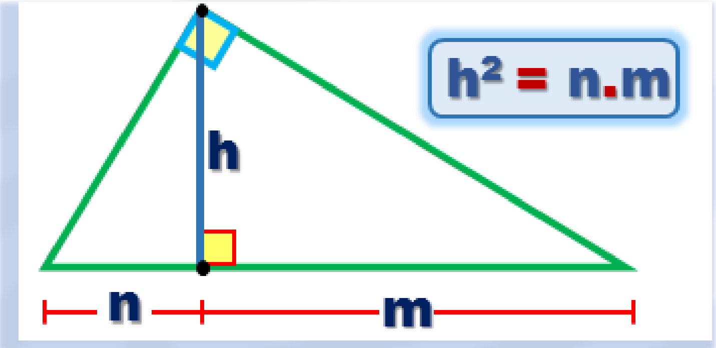
$$\frac{x}{8} = \frac{\cancel{8}^{\,1}}{\cancel{16}_{\,2}}$$

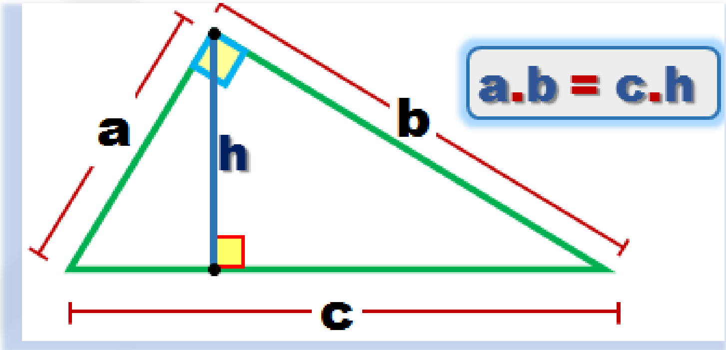
$$2x = 8$$

$$\boxed{x = 4}$$

8. En un triángulo rectángulo, las longitudes de las proyecciones de los catetos sobre la hipotenusa son 1 y 9. Calcule el producto entre las longitudes de los catetos.




$$h^2 = (1)(9)$$

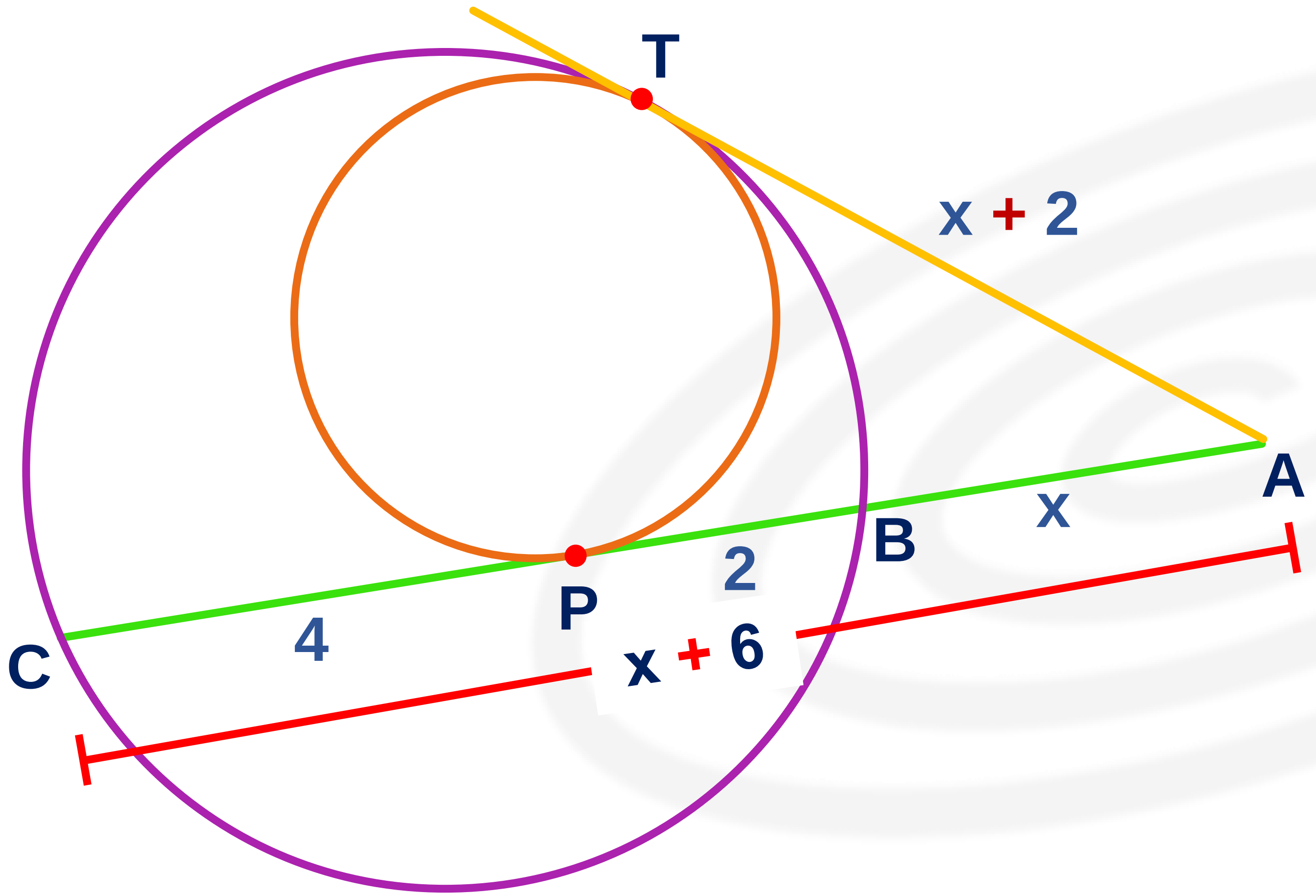
$$h = 3$$

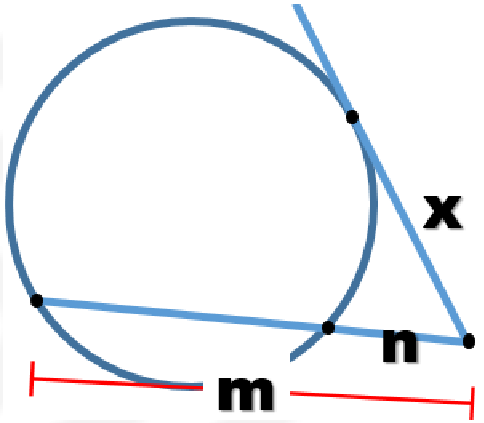
$$(a)(b) = 10(h)$$

3

$$\boxed{(a)(b) = 30}$$

9. En la figura, P y T son puntos de tangencia. CP = 4 y BP = 2. Calcule AB.




T. de la Tangente

$$\boxed{x^2 = m.n}$$

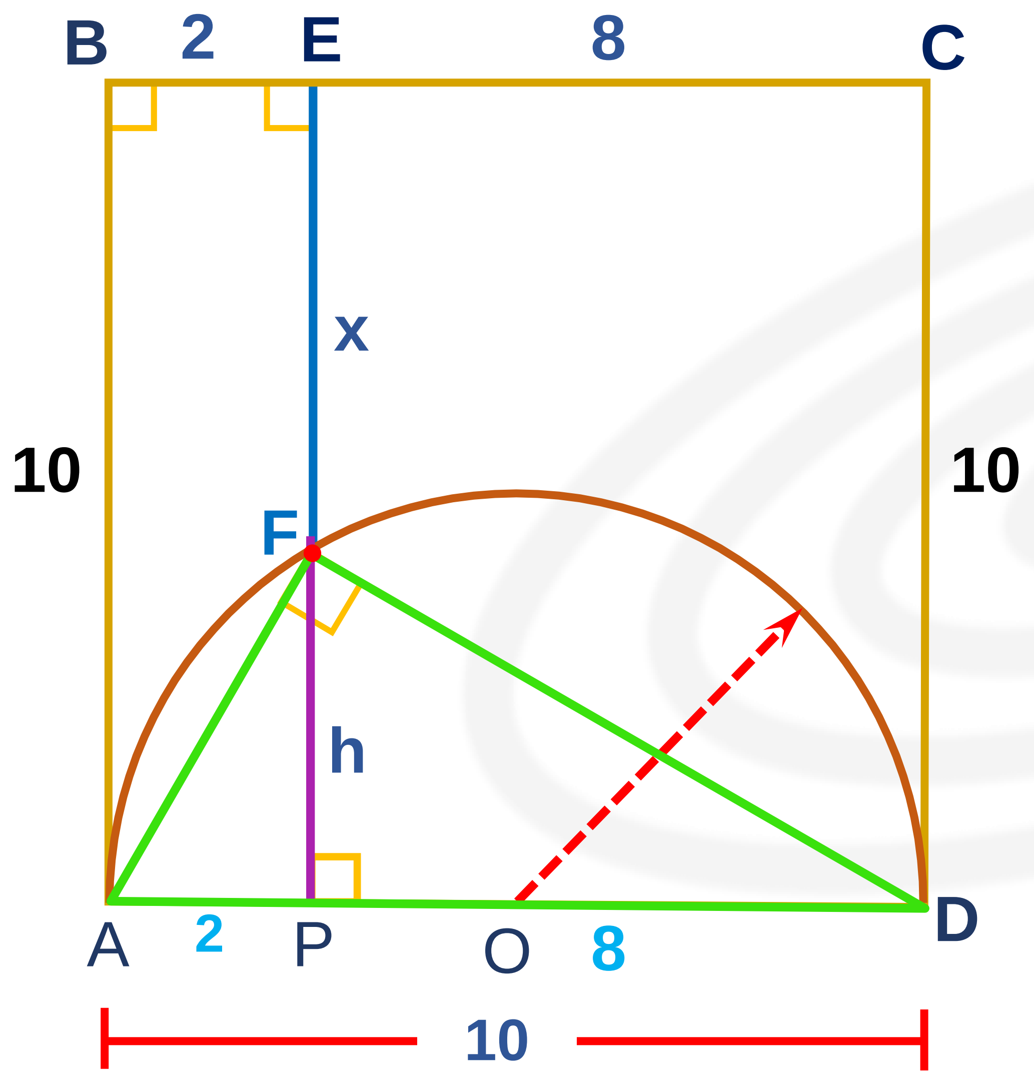
$$(x + 2)^2 = (x + 6)x$$

$$\cancel{x^2} + 4x + 4 = \cancel{x^2} + 6x$$

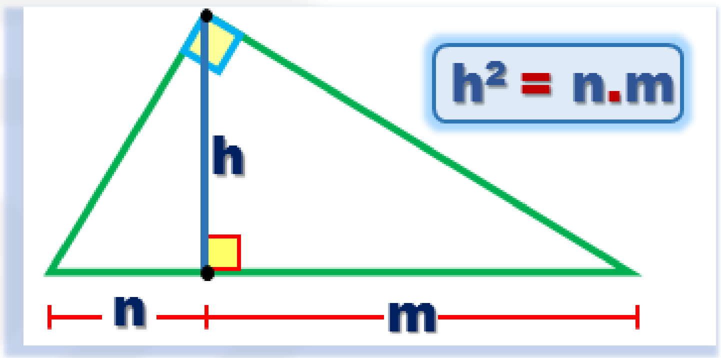
$$4 = 2x$$

$$\boxed{x = 2}$$

## 10. En el cuadrado ABCD, BE = 2 y EC = 8, calcule EF.




* Prolongamos $\overline{EF}$ hasta P




$$h^2 = (2)(8)$$

$$h = 4$$

$$x + h = 10$$

4

$$\boxed{x = 6}$$