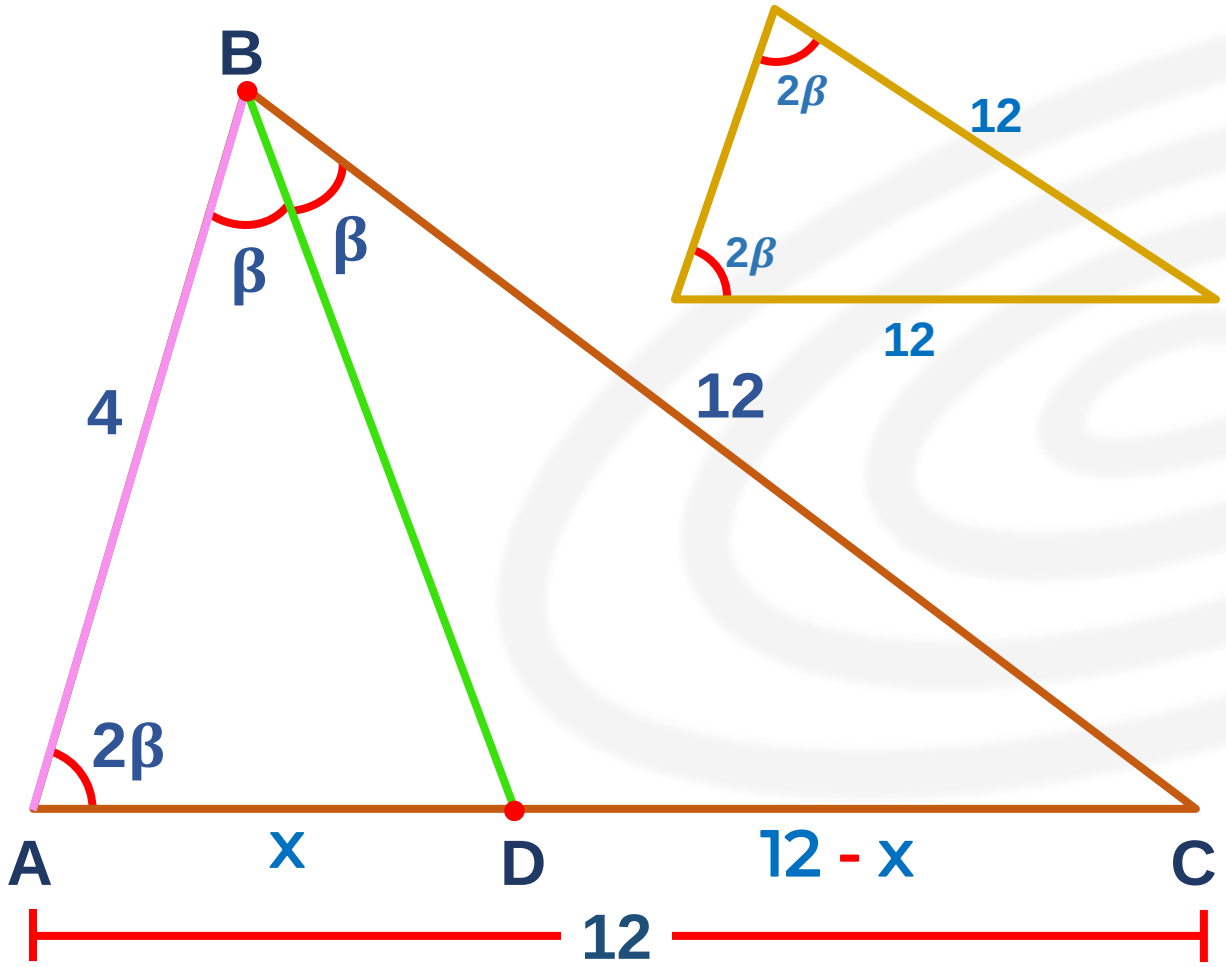
GEOMETRY

5° DE SECUNDARIA

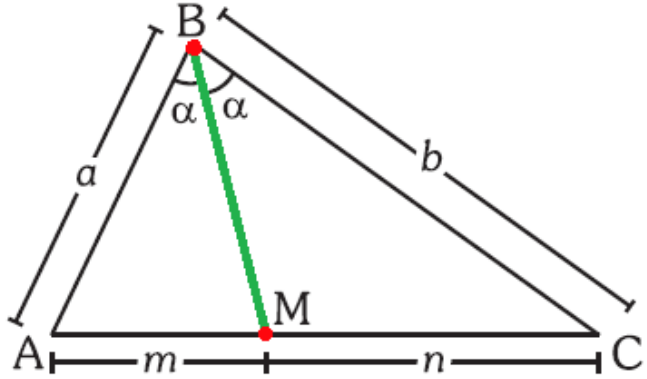
RETROALIMENTACIÓN

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

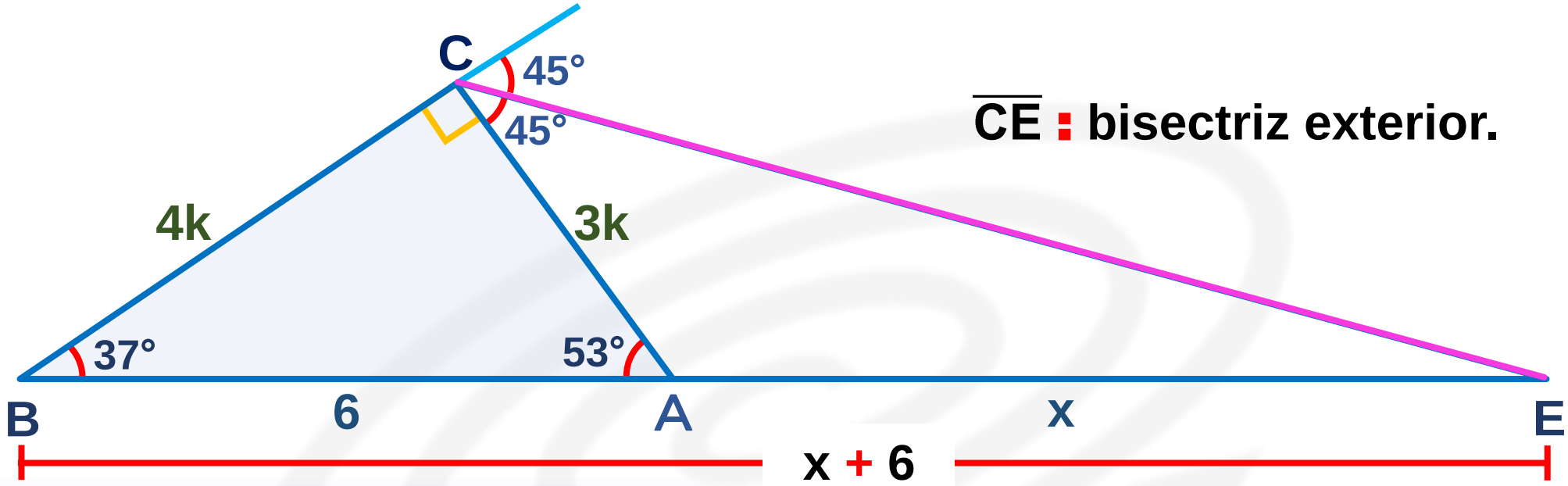
$$\frac{a}{b} = \frac{m}{n}$$

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

$$12 = 4x$$

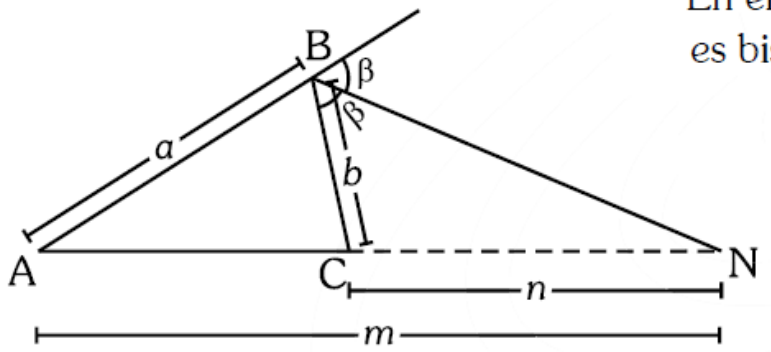
$$x = 3$$

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.

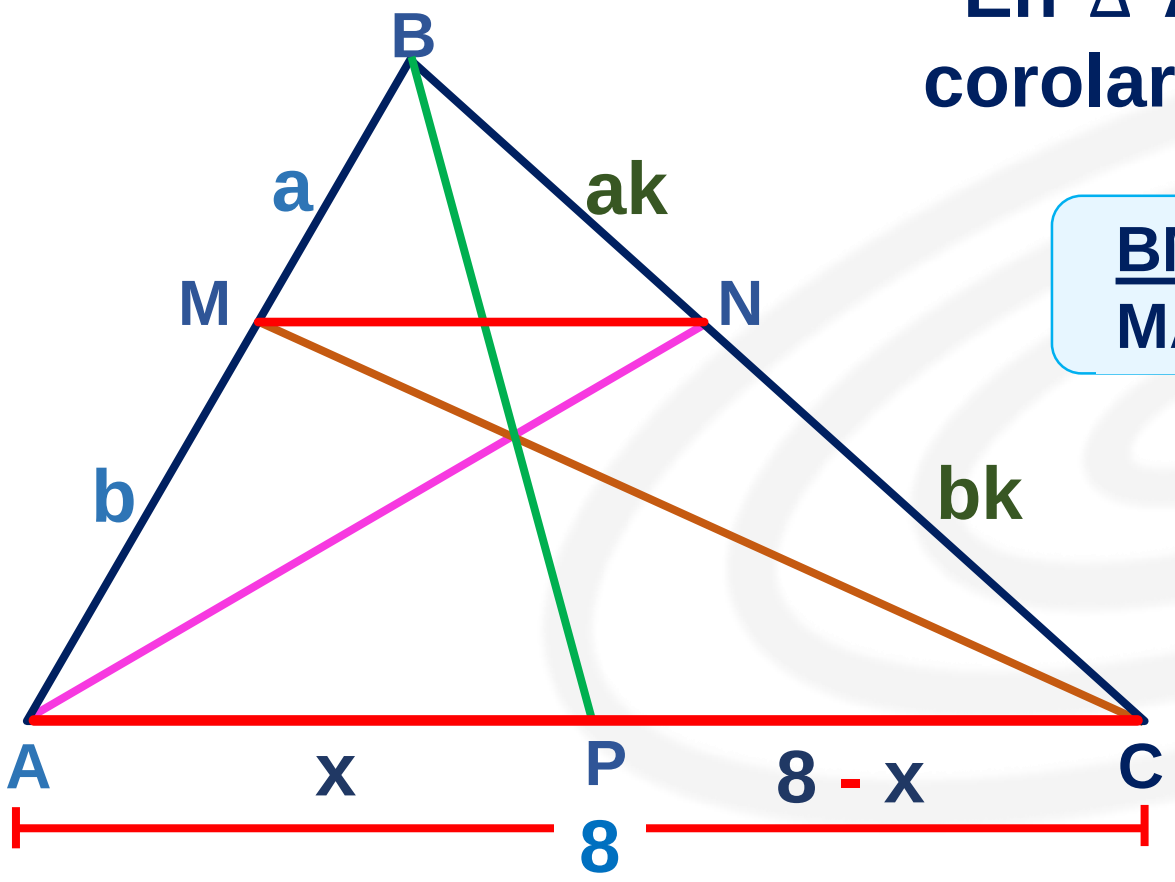
$$\frac{a}{b} = \frac{m}{n}$$

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

$$4x = 3x + 18$$

$$x = 18$$

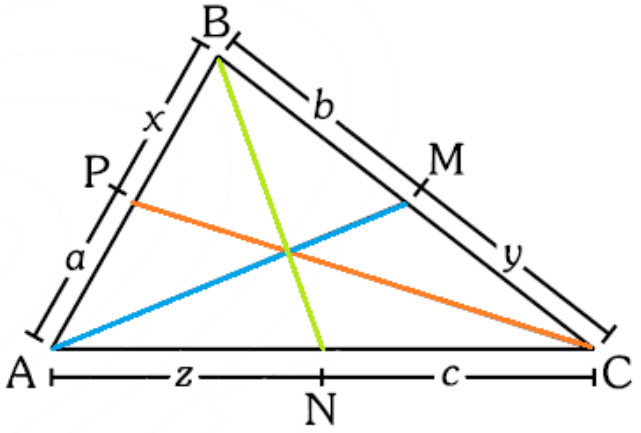
3. En la figura, $\overline{MN} \parallel \overline{AC}$, calcule AP.



* En Δ ABC, por el corolario de Thales

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

Teorema de Ceva



En el ΔABC, AM, BN y CP son cevianas internas concurrentes, se demuestra

$$a \cdot b \cdot c = c \cdot y \cdot z$$

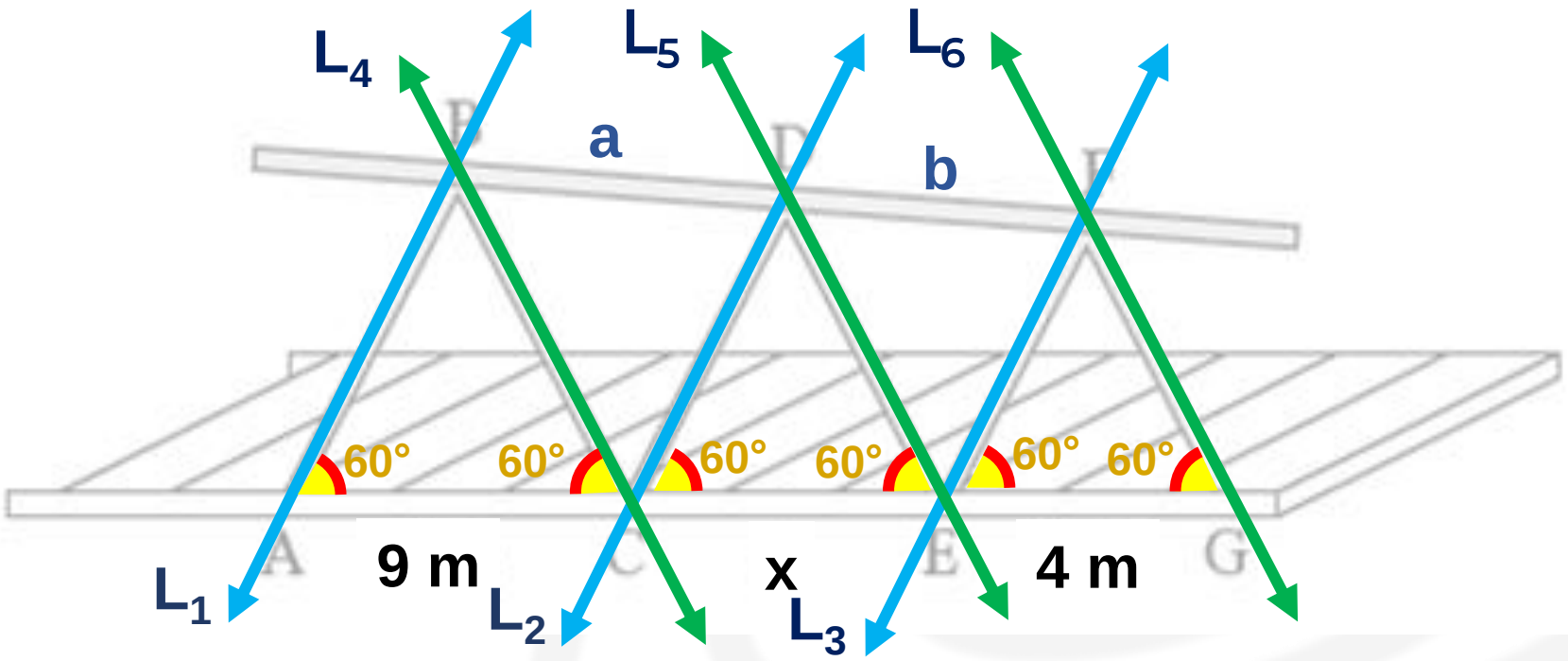
$$(a)(bk)(x) = (b)(ak)(8-x)$$

$$x = 8 - x$$

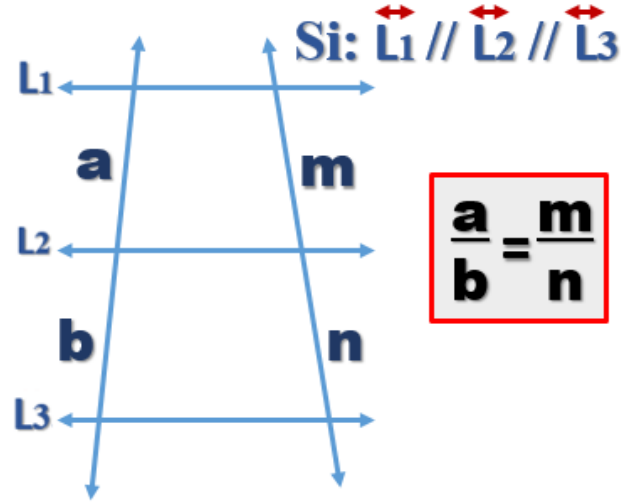
$$2x = 8$$

$$x = 4$$

4. Los triángulos ABC, CDE y EFG son equiláteros. Calcule x.



Teorema de Tales



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

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

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

$$\frac{a}{b} = \frac{9}{x} \quad \cdots\cdots (1)$$

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

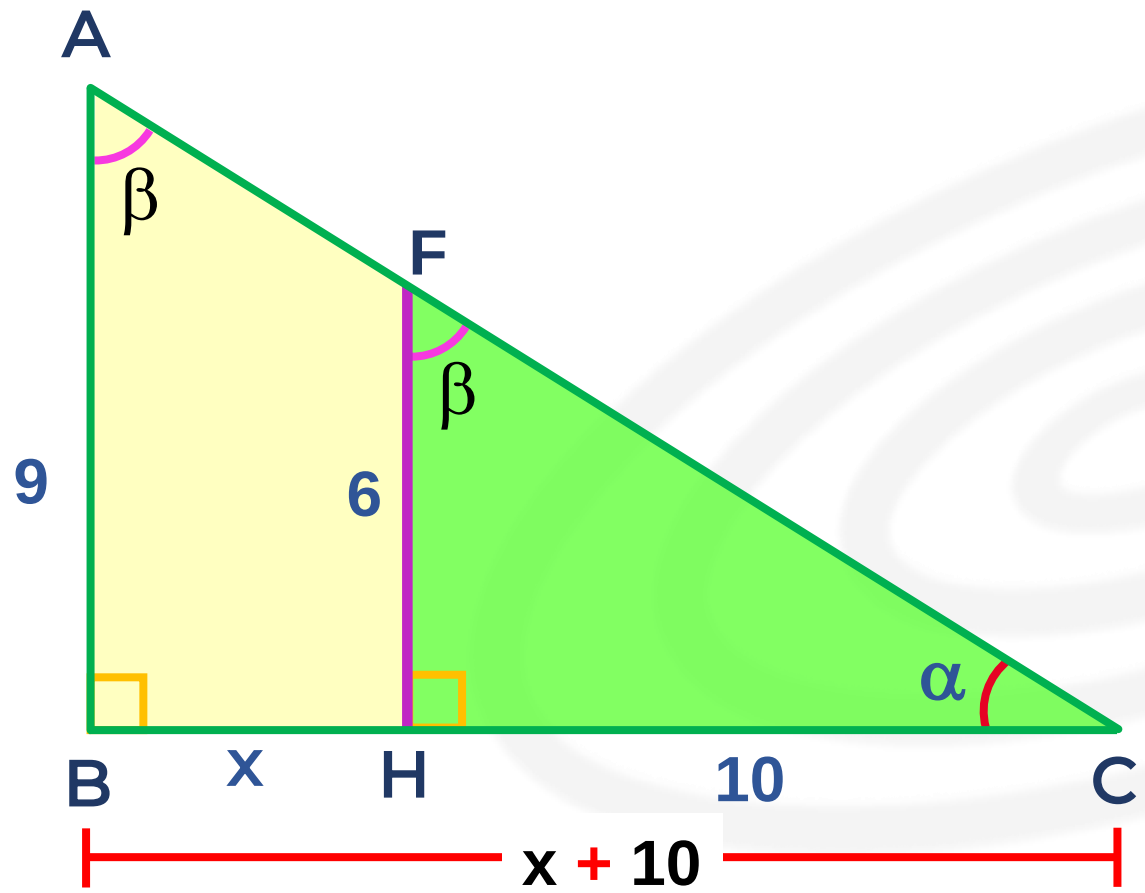
Igualando 1 y 2

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

$$36 = x^2$$

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

5. En la figura, calcule x.



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

$\Delta FHC \sim \Delta ABC$

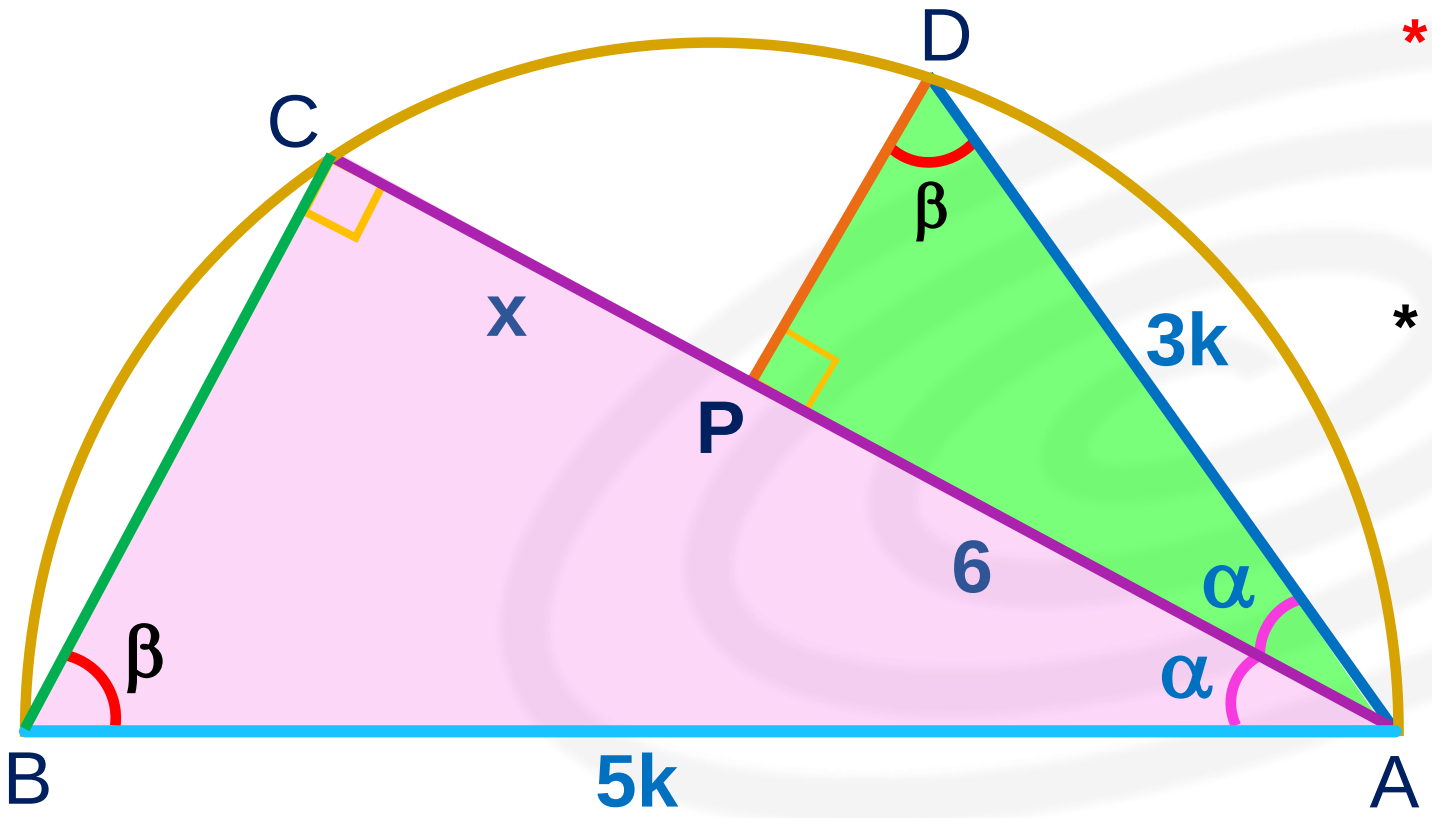
$$\frac{\cancel{6}^{2}}{\cancel{9}_{3}} = \frac{10}{x+10}$$

$$2x + 20 = 30$$

$$2x = 10$$

$$x = 5$$

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 $\overline{BC}$

$\Delta ABC \sim \Delta ADP$

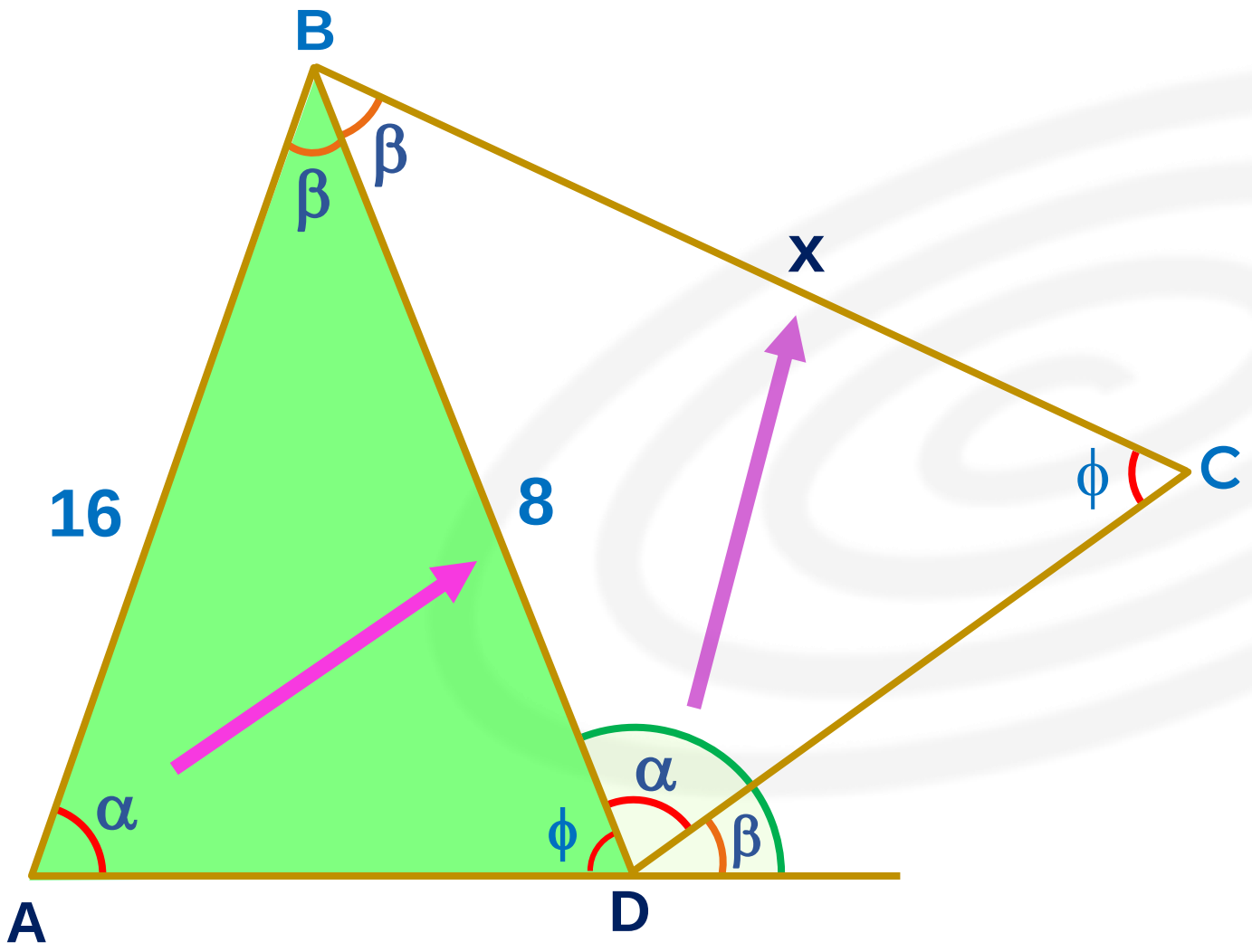
$$\frac{5k}{3k} = \frac{x+6}{6}$$

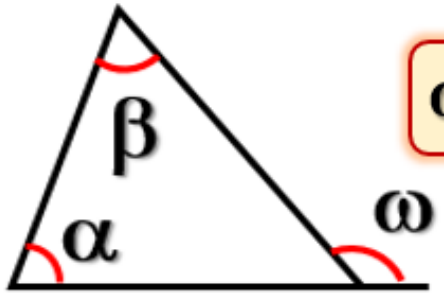
$$30 = 3x + 18$$

$$12 = 3x$$

$$x = 4$$

7. En la figura, calcule x.





$\omega = \alpha + \beta$

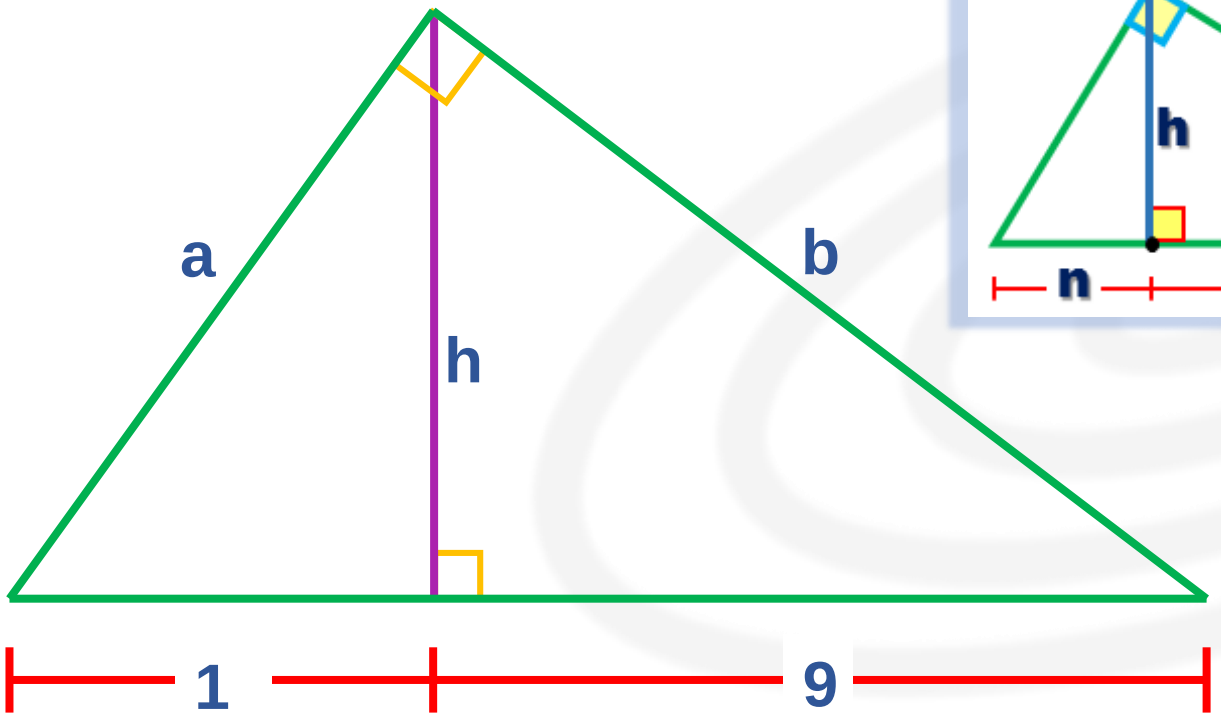
$\Delta ABD \sim \Delta DBC$

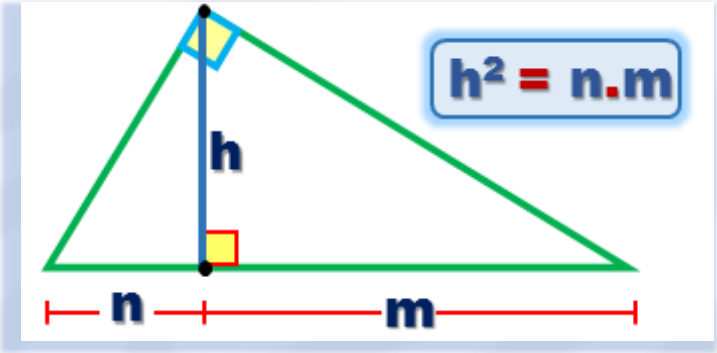
$$\frac{x}{8} = \frac{\cancel{8}^{1}}{\cancel{16}_{2}}$$

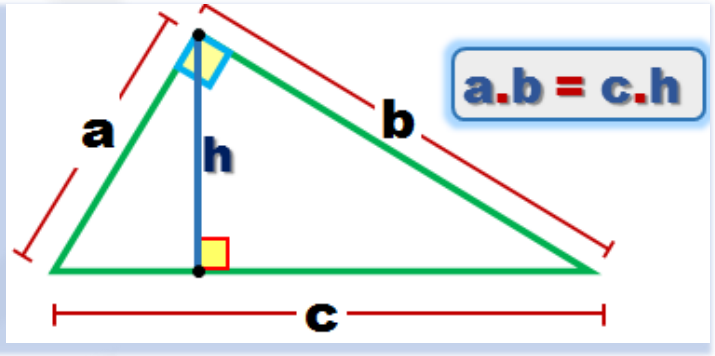
$$2x = 8$$

$$x = 4$$

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.







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

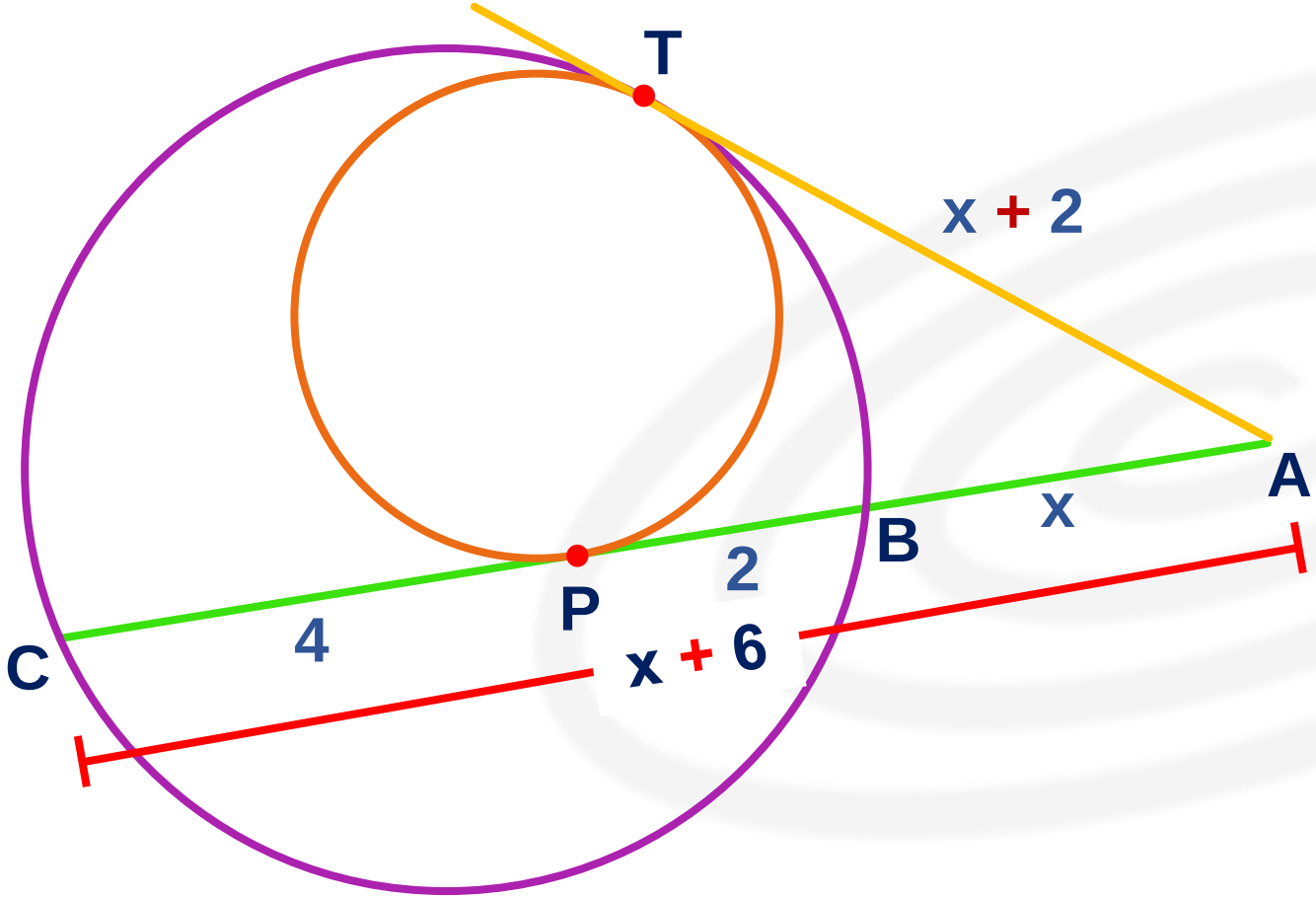
$h = 3$

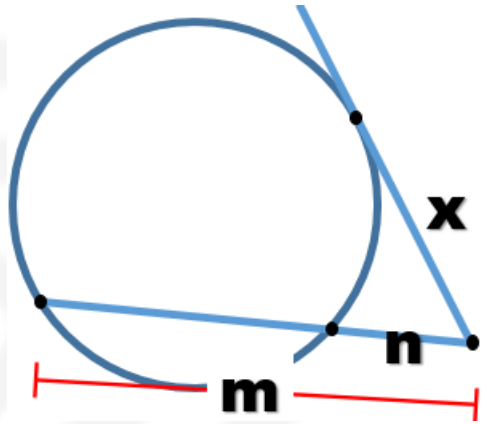
$(a)(b) = 10(h)$

3

$(a)(b) = 30$

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





T. de la Tangente

$x^2 = m.n$

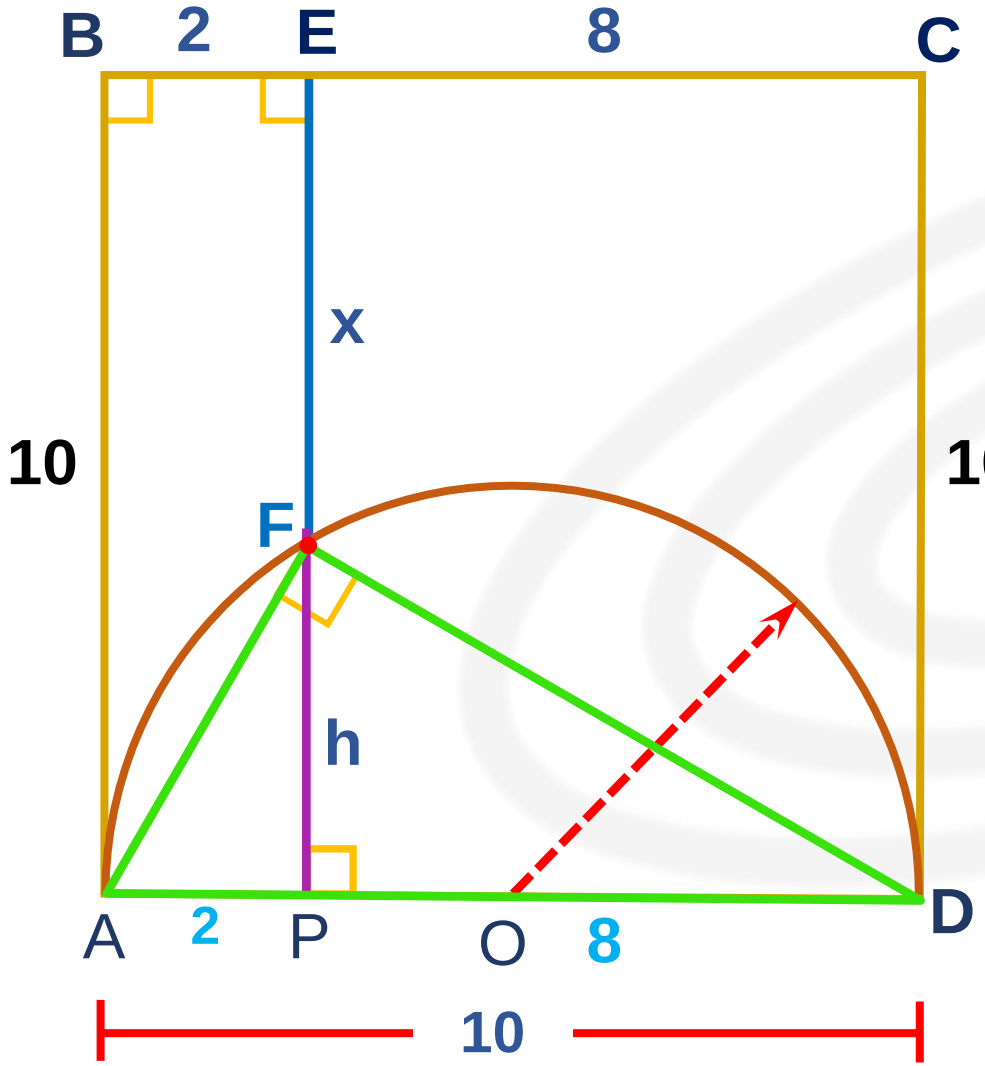
$(x + 2)^2 = (x + 6)x$

$x^2 + 4x + 4 = x^2 + 6x$

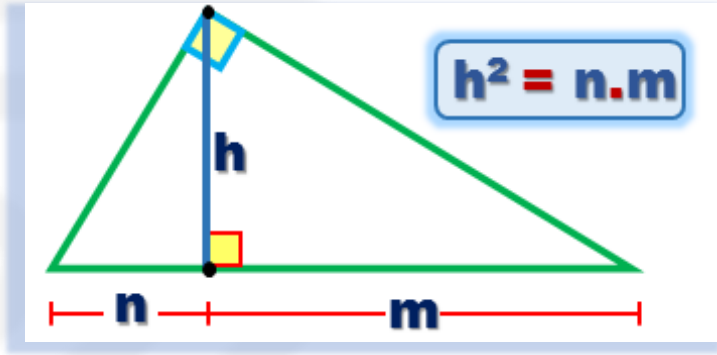
$4 = 2x$

$x = 2$

10. Si ABCD es un cuadrado, BE = 2 y EC = 8, calcule EF.



* Prolongamos $\overline{EF}$ hasta P



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

$h = 4$

$x + h = 10$

$x + 4 = 10$

$x = 6$