GEOMETRÍA

2nd

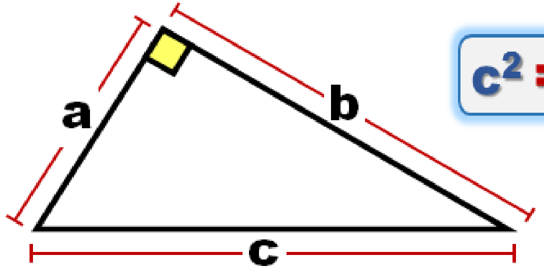
SECONDARY

RETROALIMENTACIÓN TOMO VI

SACO OLIVEROS

1. En un triángulo ABC recto en B, si AB = 8m y BC = 15m, halle el perímetro del triángulo.

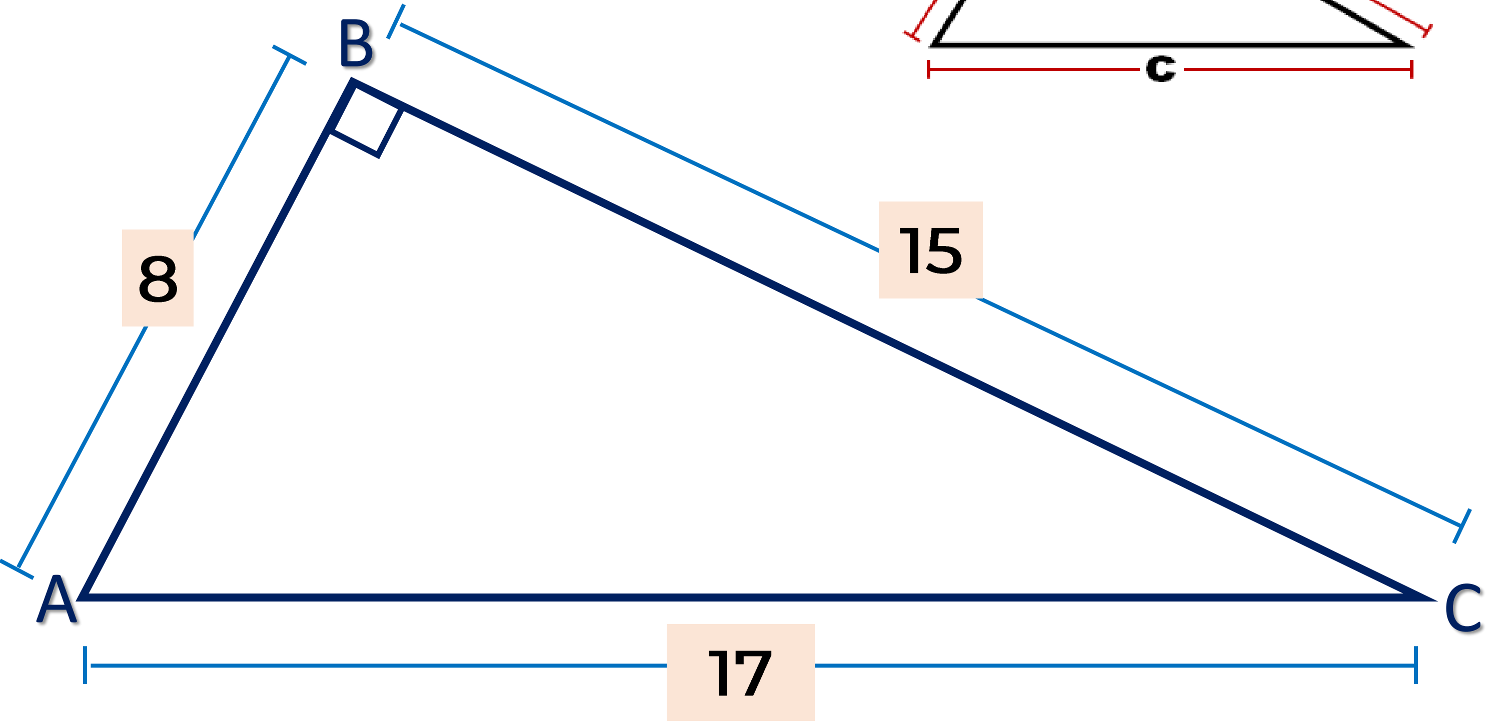
Teorema de Pitágoras



$c^2 = a^2 + b^2$

RESOLUCIÓN

Piden: $2p\Delta_{ABC}$



$AC^2 = 8^2 + 15^2$

$AC^2 = 64 + 225$

$AC^2 = 289$

$\boxed{AC = 17}$

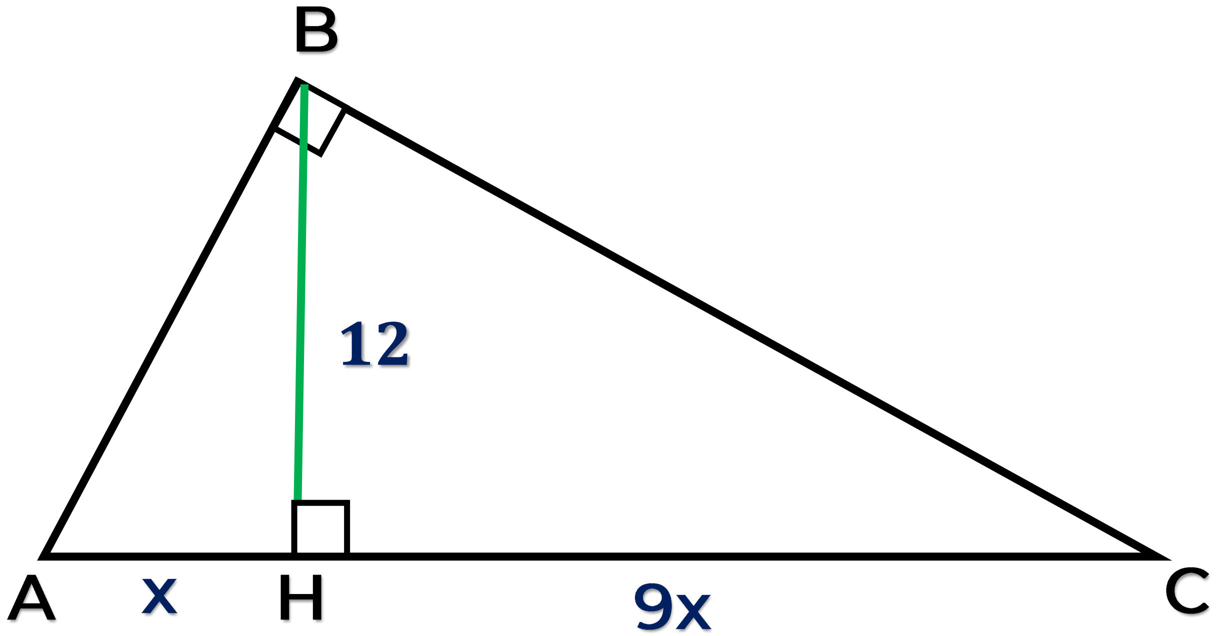
$2p\Delta_{ABC} = 8 + 15 + 17$

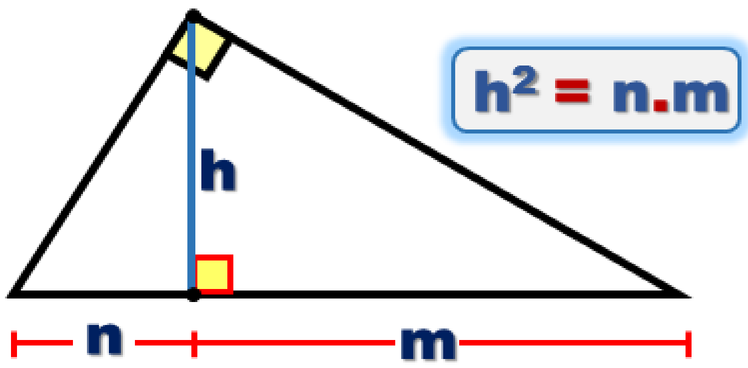
$\therefore \boxed{2p\Delta_{ABC} = 40\ m}$

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

RESOLUCIÓN

Piden: x





$$12^2 = (x).(9x)$$

$$144 = 9x^2$$

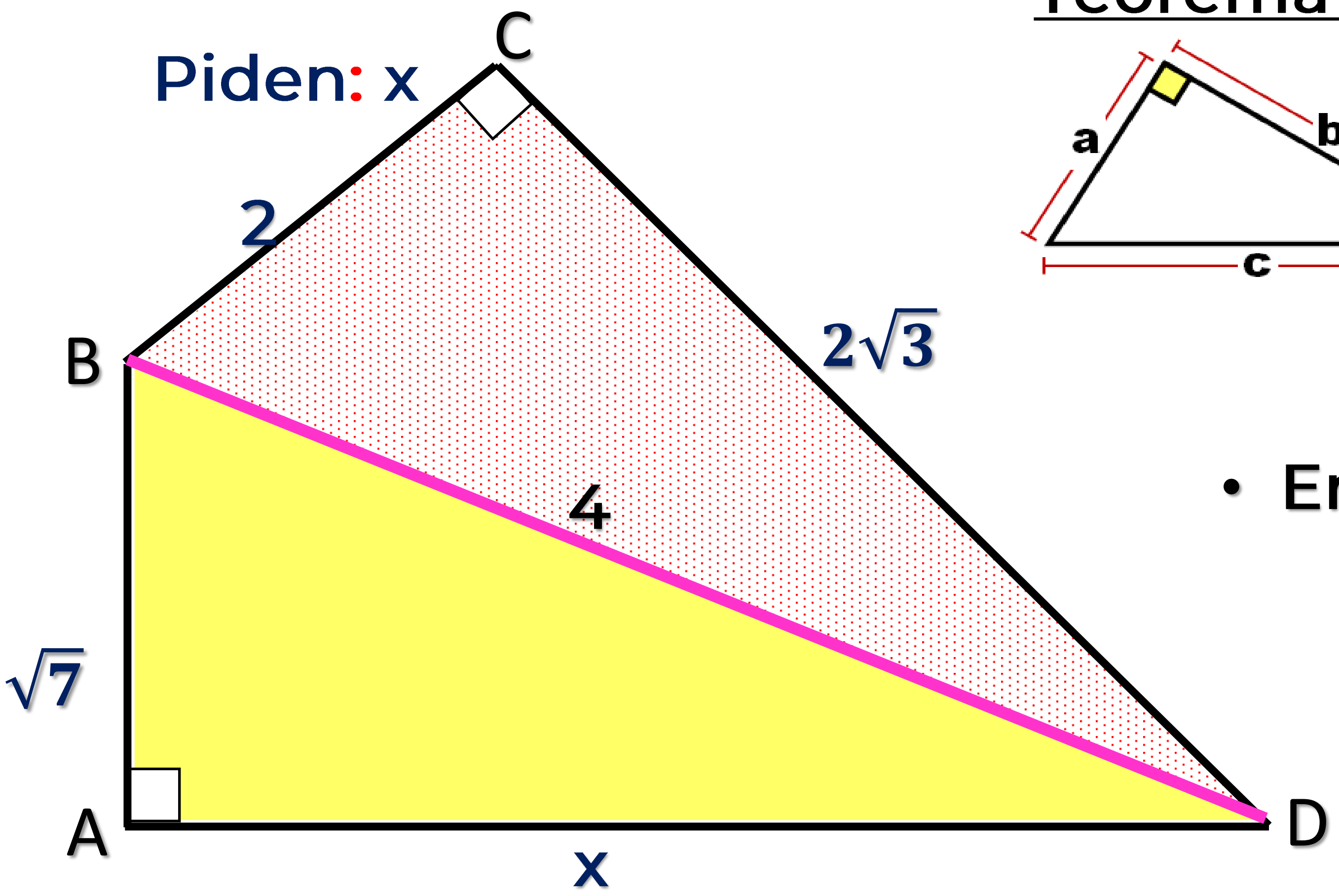
$$16 = x^2$$

$$\therefore \boxed{x = 4}$$

3. En el gráfico, halle el valor de *x*.

RESOLUCIÓN

Piden: x



- Se traza $\overline{BD}$

Teorema de Pitágoras

$c^2 = a^2 + b^2$

- En el ⊿ BCD:

$BD^2 = 2^2 + (2\sqrt{3})^2$

$BD^2 = 4 + 12$

$\boxed{BD = 4}$

- En el ⊿ ABD:

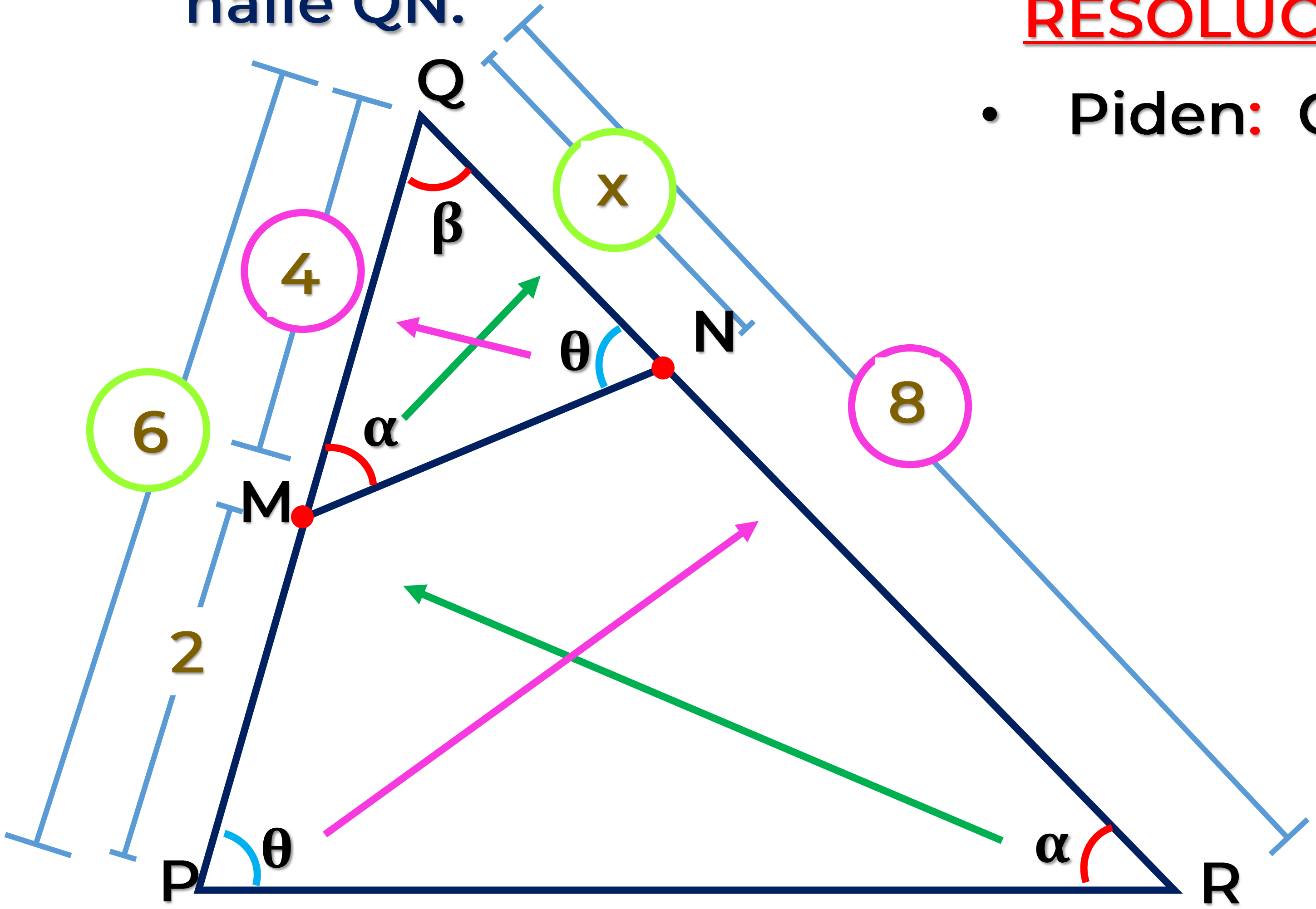
$4^2 = x^2 + (\sqrt{7})^2$

$16 = x^2 + 7$

$9 = x^2$

$\therefore \boxed{x = 3}$

4. Se tiene un triángulo PQR, donde M ∈ $\overline{PQ}$, N ∈ $\overline{QR}$ y m<QMN=m<PRQ. Si PM= 2m, MQ= 4m y QR= 8m; halle QN.



RESOLUCIÓN

- Piden: QN = x

$\boxed{\Delta MQN \sim \Delta RQP}$

(A–A–A)

$$\frac{x}{6} = \frac{4}{8}$$

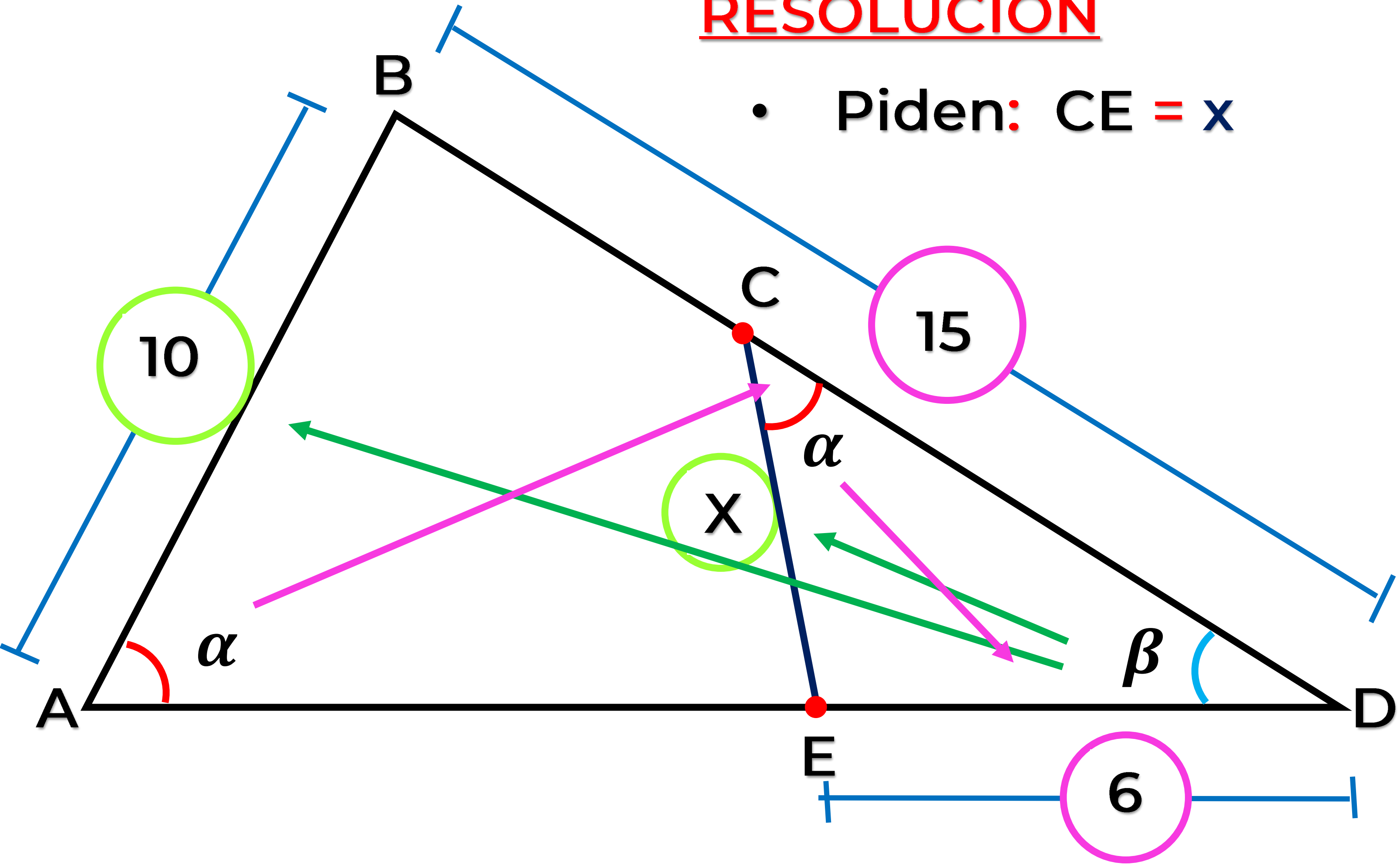
$$(8).(x) = (6).(4)$$

$$8x = 24$$

$$\therefore \boxed{x = QN = 3}$$

5. Se tiene un triángulo ABD, donde $\overline{C} \in \overline{BD}$, $E \in AD$ y m<BAD=m<ECD. Si AB= 10, BD= 15 y ED= 6; halle CE.

RESOLUCIÓN



- Piden: CE = x

$\Delta\, CED \sim \Delta\, ABD$

(A – A – A)

$$\frac{x}{10} = \frac{6}{15}$$

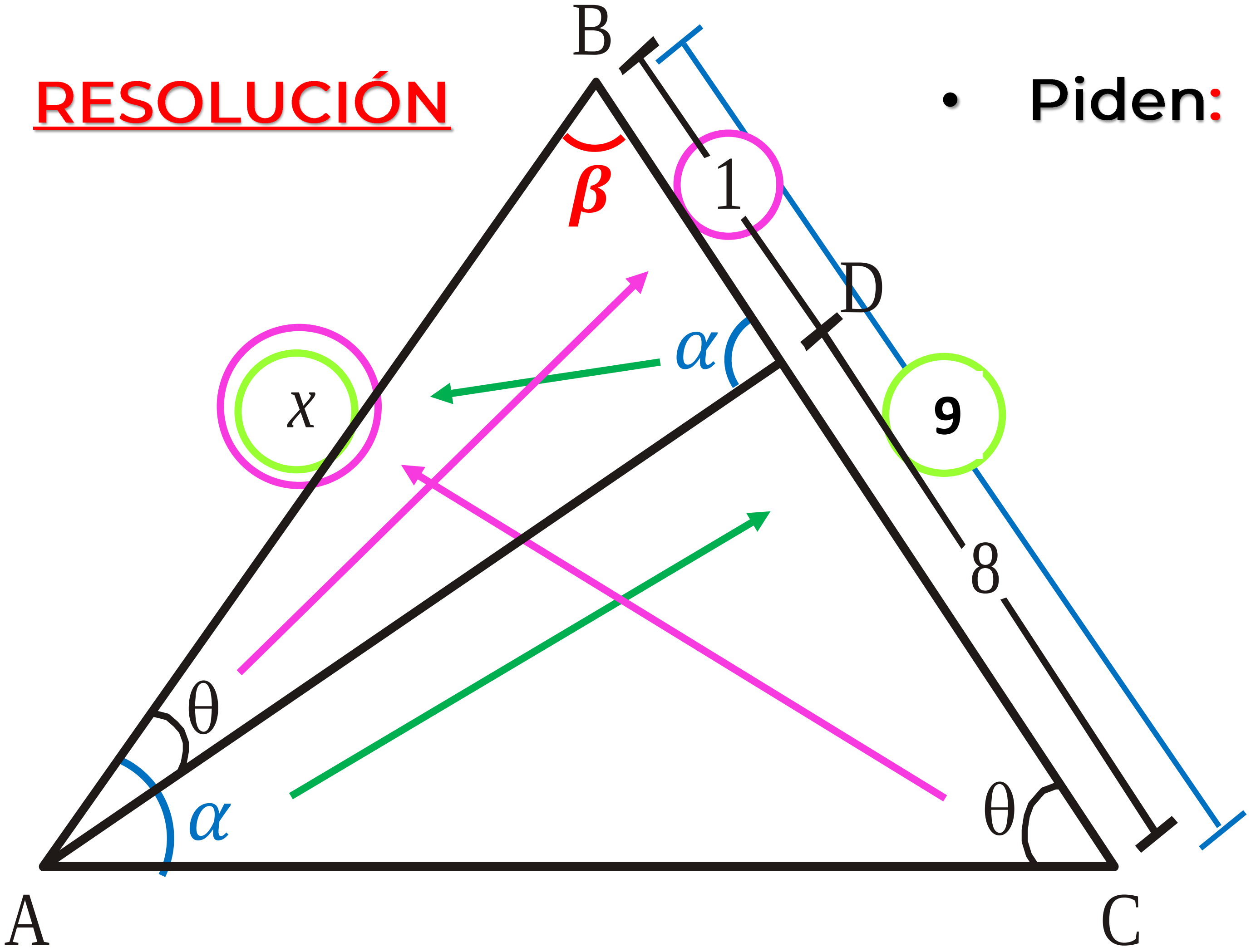
(15).(x) = (10).(6)

15 x = 60

$\therefore$ $\boxed{x = 4}$

6. Del gráfico, halle el valor de x.

RESOLUCIÓN



• Piden: x

$\boxed{\Delta ABD \sim \Delta CBA}$

(A – A – A)

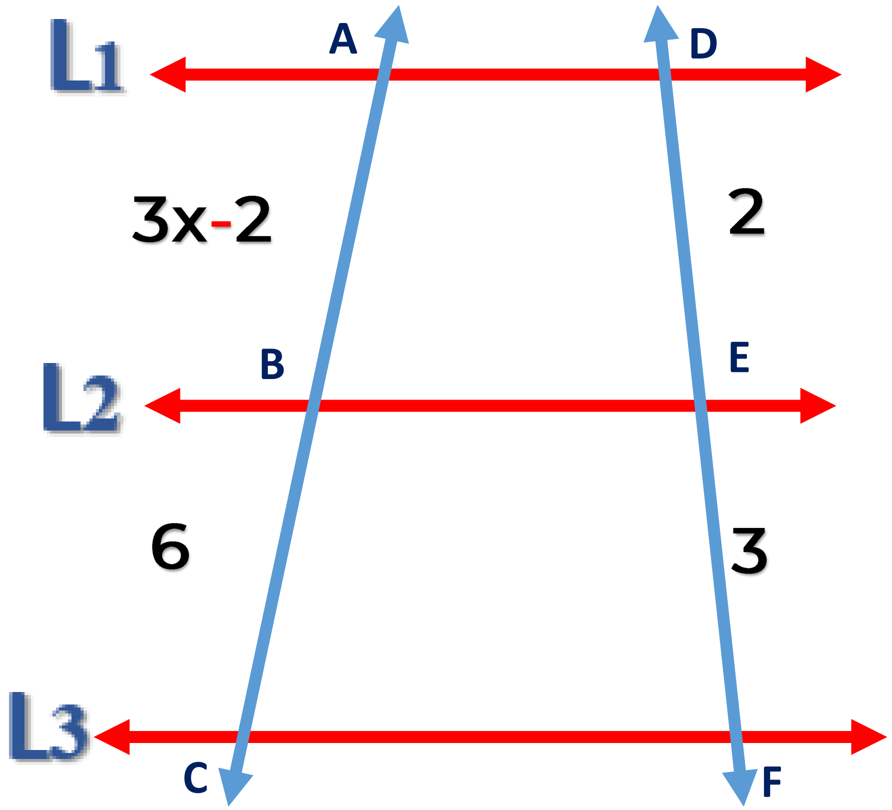
$$\frac{x}{9} = \frac{1}{x}$$

$$x^2 = (1).(9)$$

$$x^2 = 9$$

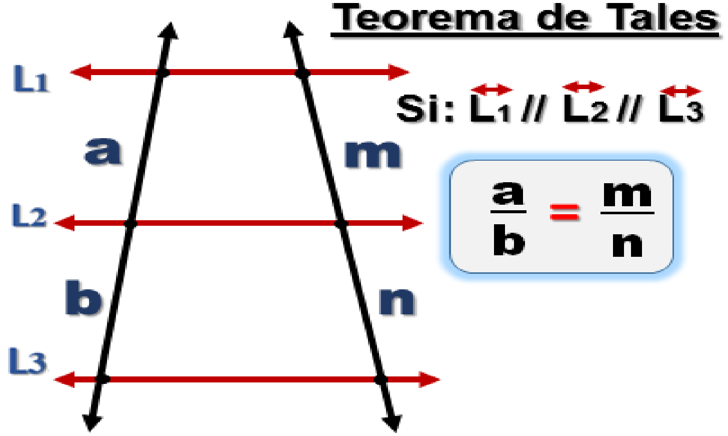
$$\therefore \boxed{x = 3}$$

7. Si $\overleftrightarrow{L_1} \,//\, \overleftrightarrow{L_2} \,//\, \overleftrightarrow{L_3}$, AB=3x–2, BC=6, DE=2, EF=3. Halle el valor de x.



RESOLUCIÓN

Piden: x



$$\frac{3x-2}{6} = \frac{2}{3}$$

$$9x - 6 = 12$$

$$9x = 18$$

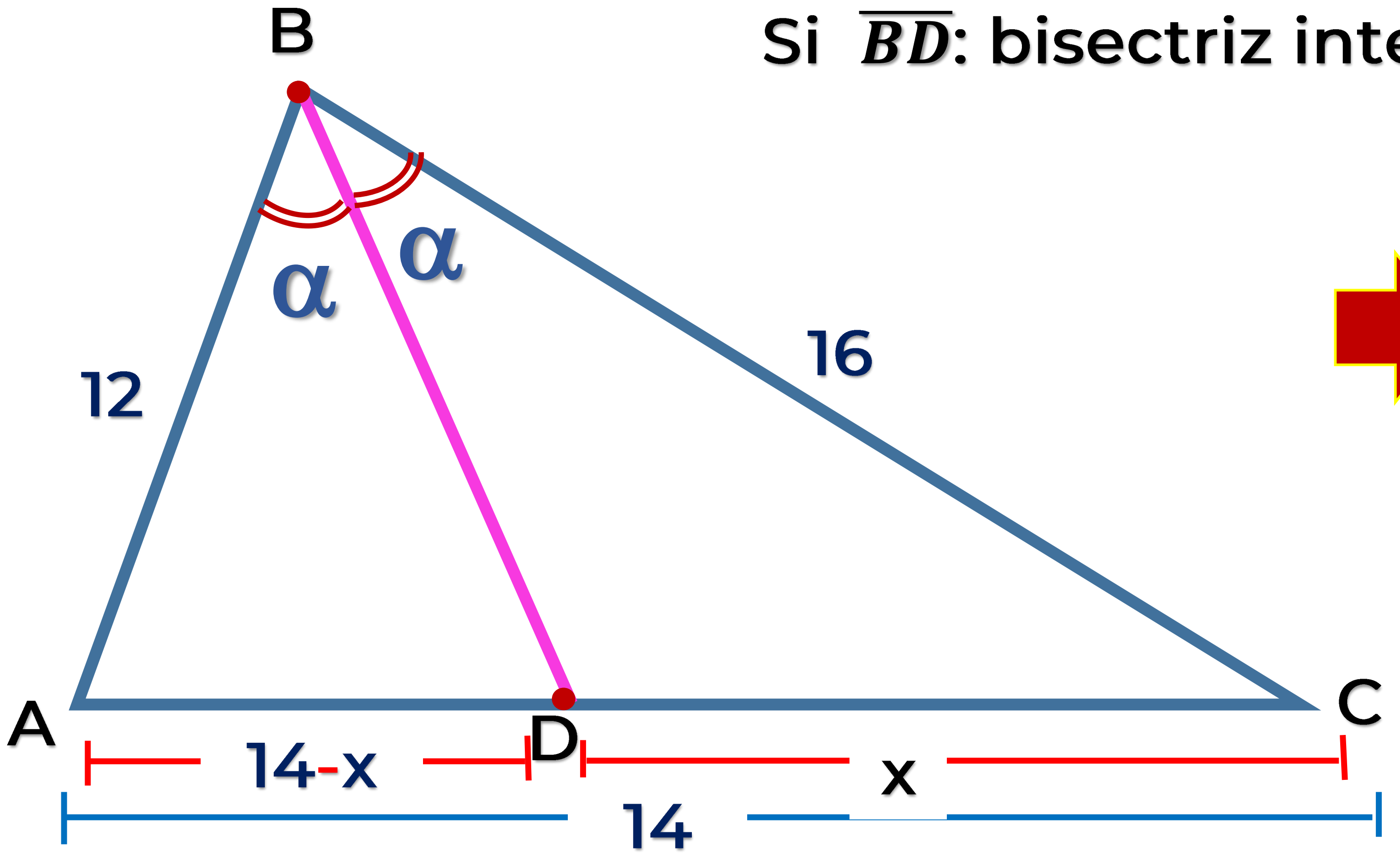
$\therefore$ $\boxed{x = 2}$

8. En un triángulo ABC, se traza la bisectriz interior $\overline{BD}$. Si AB = 12m, BC = 16, AC= 14; halle el valor de DC.

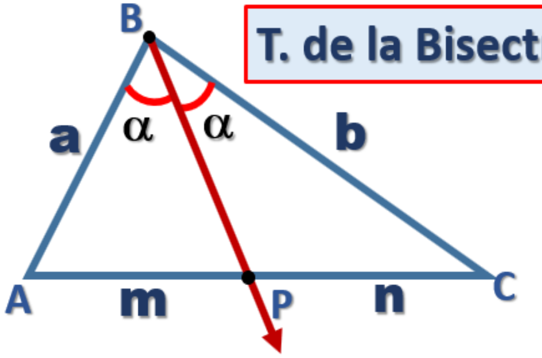
RESOLUCIÓN

Piden: x

Si $\overline{BD}$: bisectriz interior



T. de la Bisectriz Interior



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

$$\frac{\cancel{12}^{\,3}}{\cancel{16}_{\,4}} = \frac{14 - x}{x}$$

$$3x = 56 - 4x$$

$$7x = 56$$

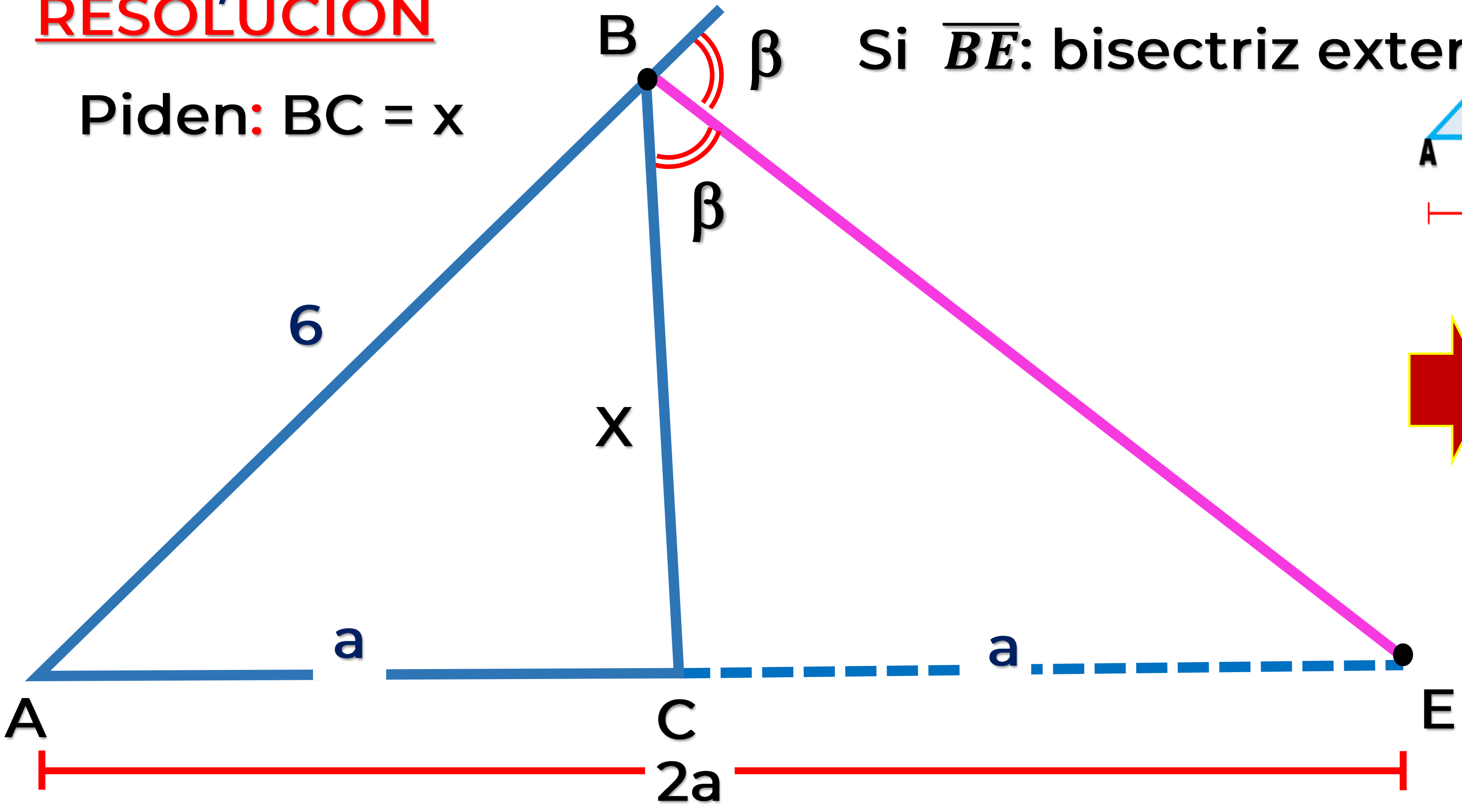
$$\therefore \boxed{x = 8}$$

9. En el triángulo ABC se traza la bisectriz exterior $\overline{BE}$, donde E ∊ a la prolongación de $\overline{AC}$. Si AB = 6m y CE = AC, halle BC.

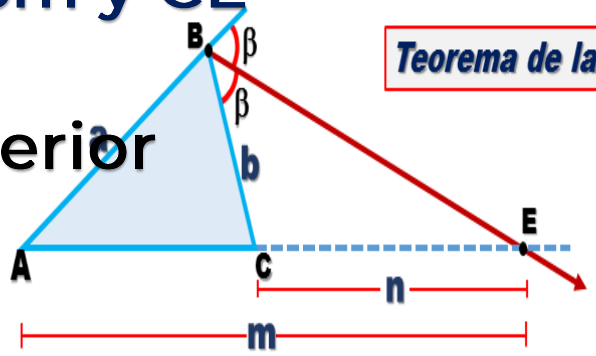
RESOLUCIÓN

Piden: BC = x

Si $\overline{BE}$: bisectriz exterior



Teorema de la Bisectriz Exterior



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

$$\frac{6}{x} = \frac{2\cancel{a}}{\cancel{a}}$$

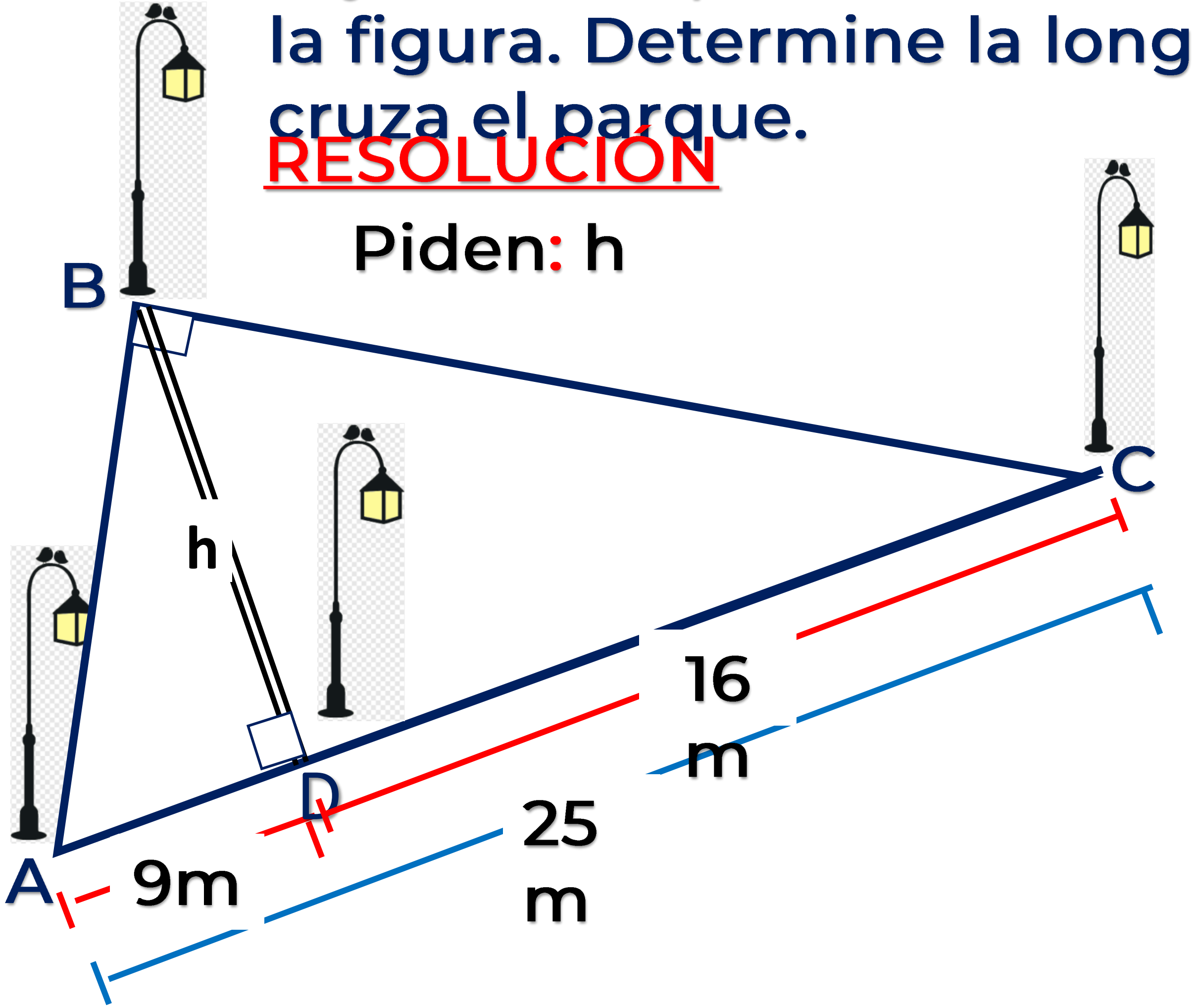
$$2x = 6$$

$$\therefore \boxed{x = BC = 3}$$

10. Se colocan cuatro postes de alumbrado público en el jardín del profesor Eduardo, como se muestra en la figura. Determine la longitud de la vereda BD que cruza el parque.

RESOLUCIÓN

Piden: h

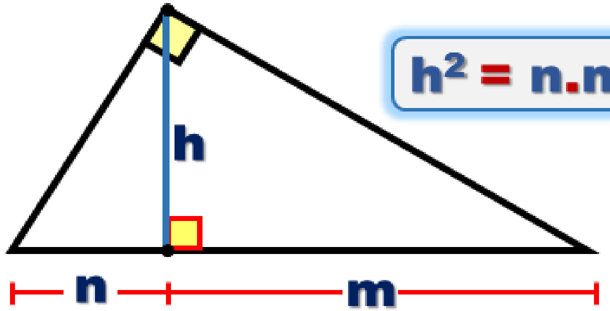


Del gráfico

$AC = AD + DC$

$25 = 9 + DC$

$\boxed{DC = 16m}$



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

$h^2 = (9).(16)$

$h^2 = 144$

$\therefore \boxed{x = 12m}$