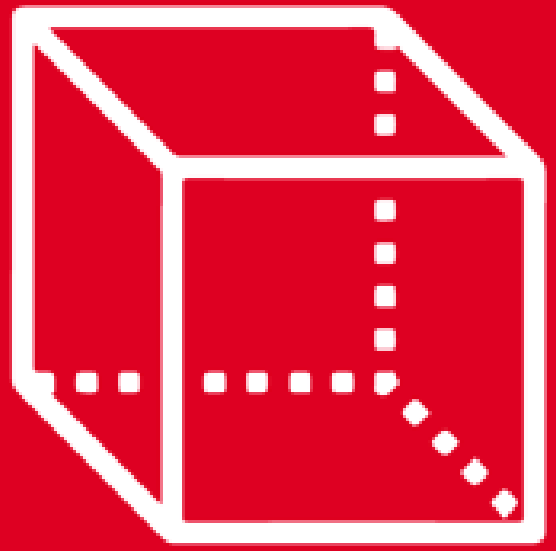
GEOMETRY

Chapter16

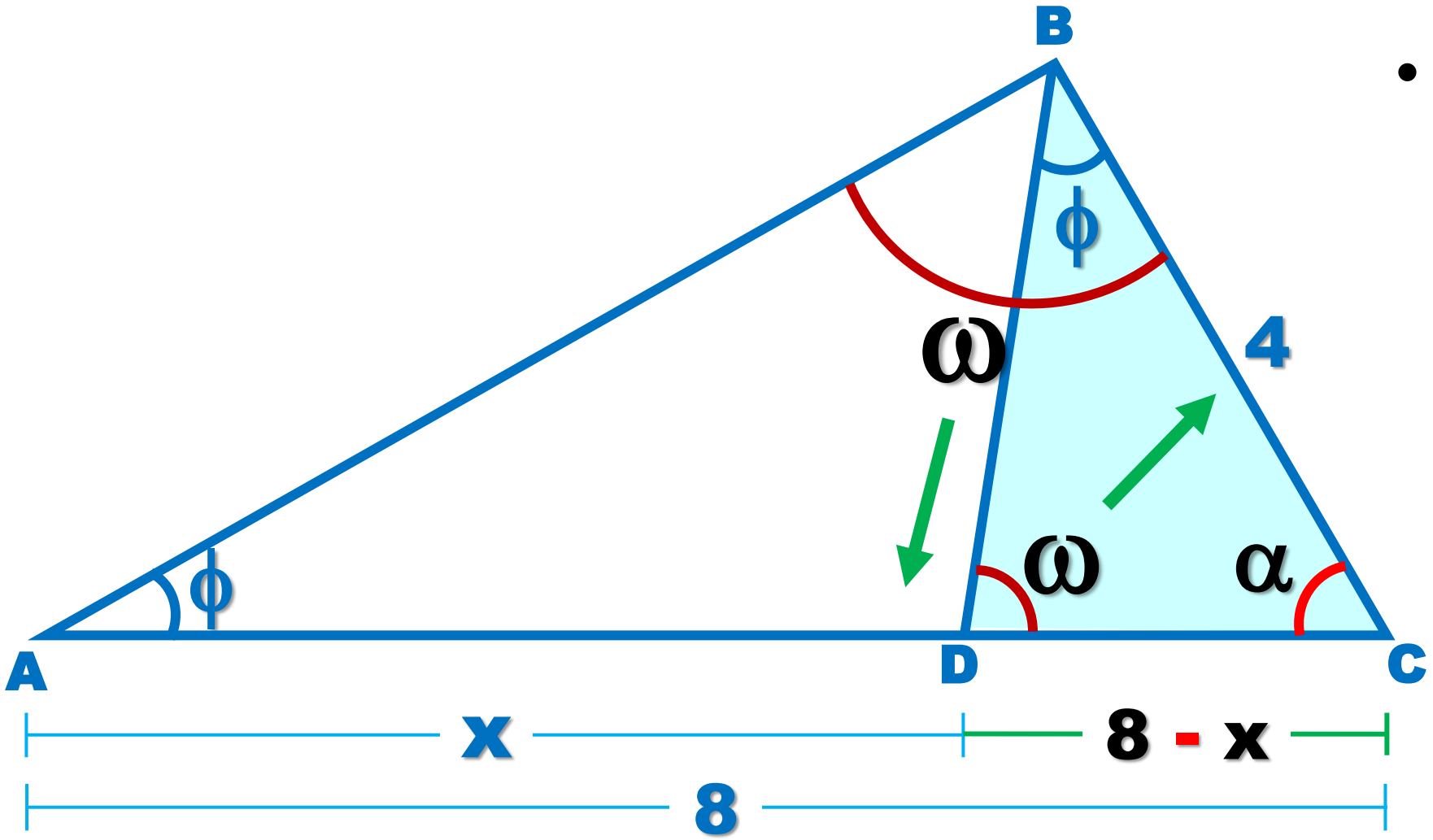


3 de secundaria

Triángulos Semejantes
Sesión II

SACO OLIVEROS

1. En la figura, calcule x.



- Piden: x
- $\Delta BDC \sim \Delta ABC$

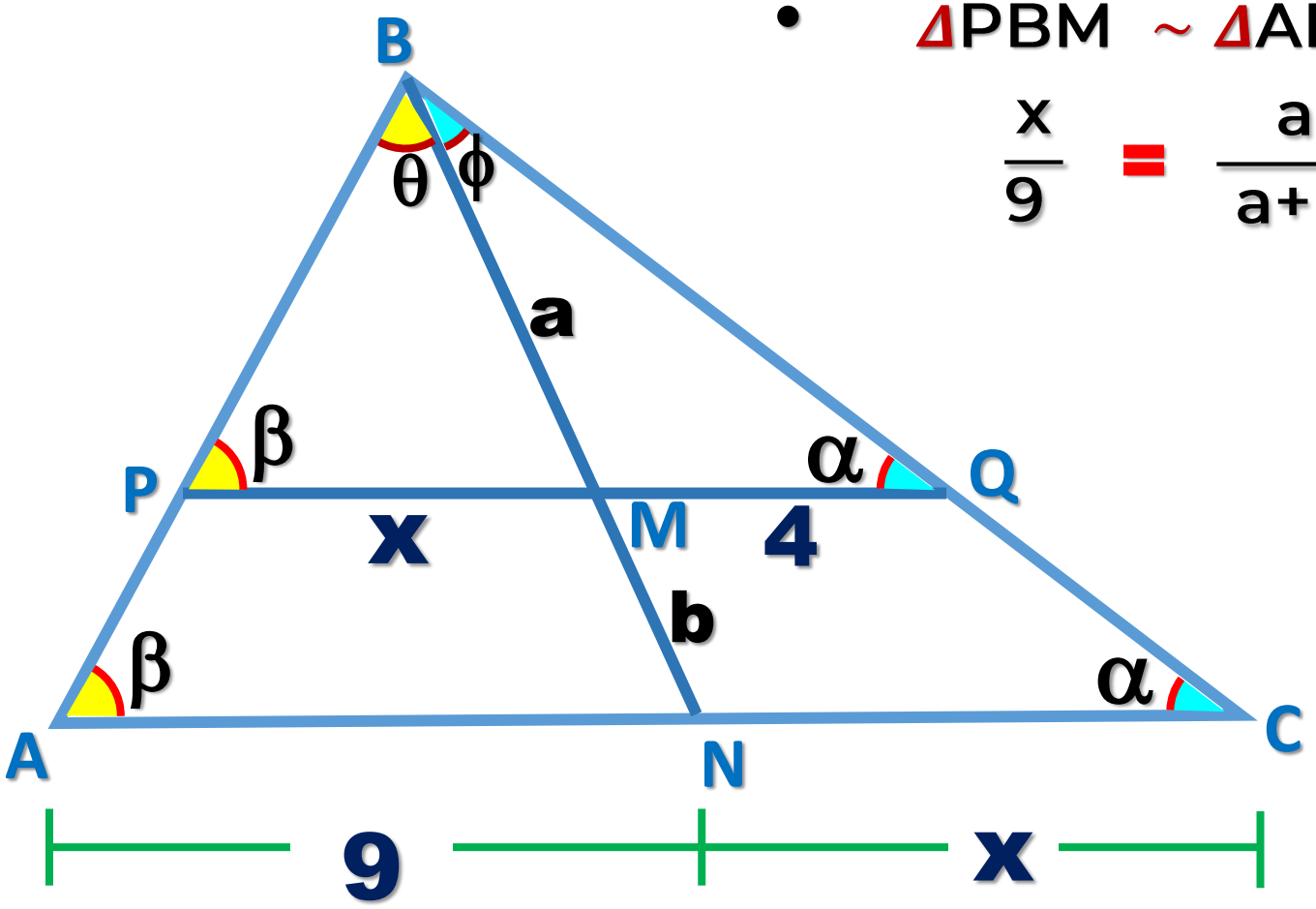
$$\frac{\cancel{4}^{1}}{\cancel{8}_{2}} = \frac{8 - x}{4}$$

$$4 = 16 - 2x$$

$$2x = 12$$

$$\boxed{x = 6}$$

2. En la figura, $\overline{PQ} // \overline{AC}$, calcule x.



- Piden: x
- $\Delta PBM \sim \Delta ABN$

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

- $\Delta MBQ \sim \Delta NBC$

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

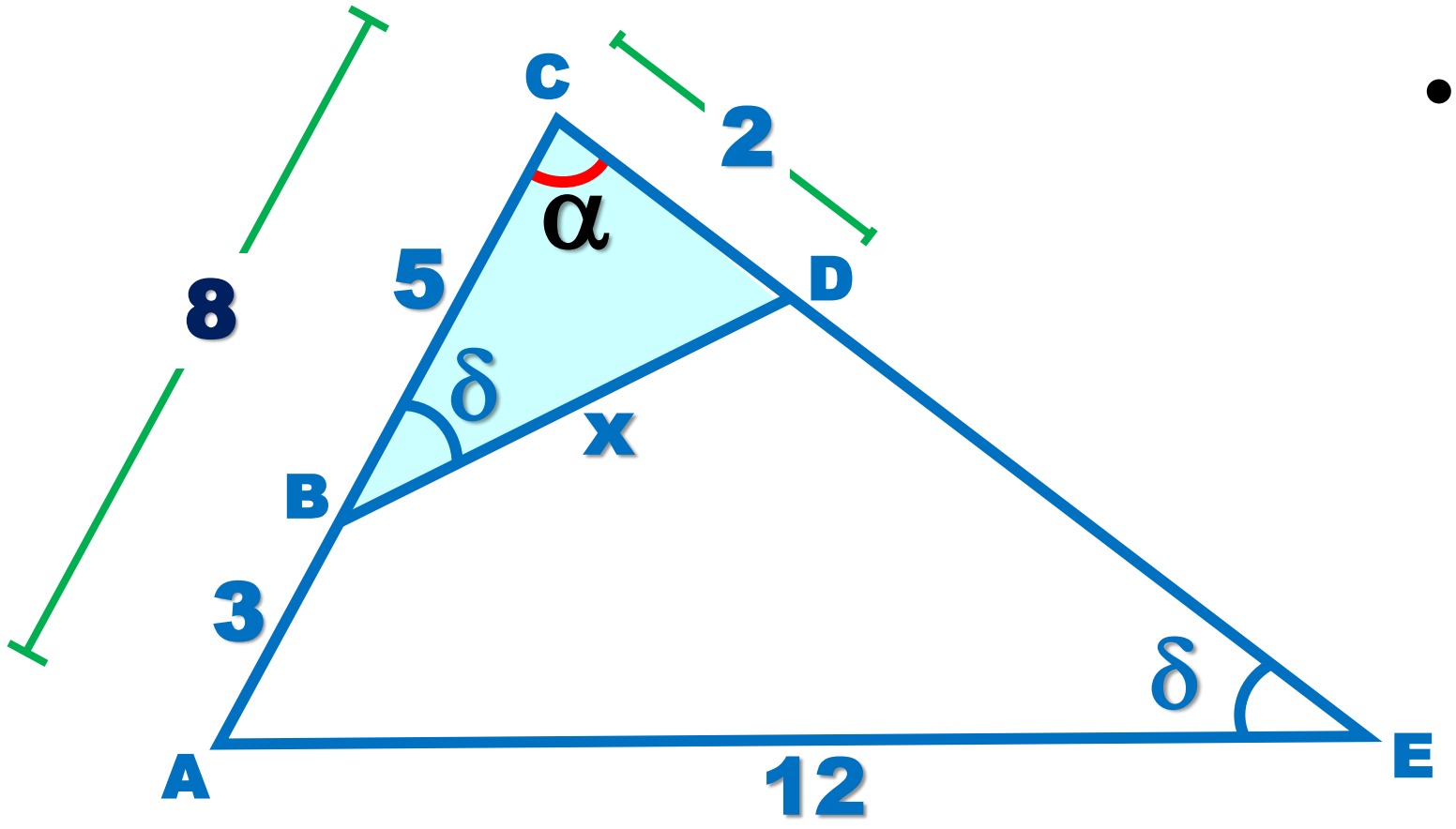
- Igualando 1 y 2.

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

$$x^2 = 36$$

$$x = 6$$

3. En la figura, calcule x.



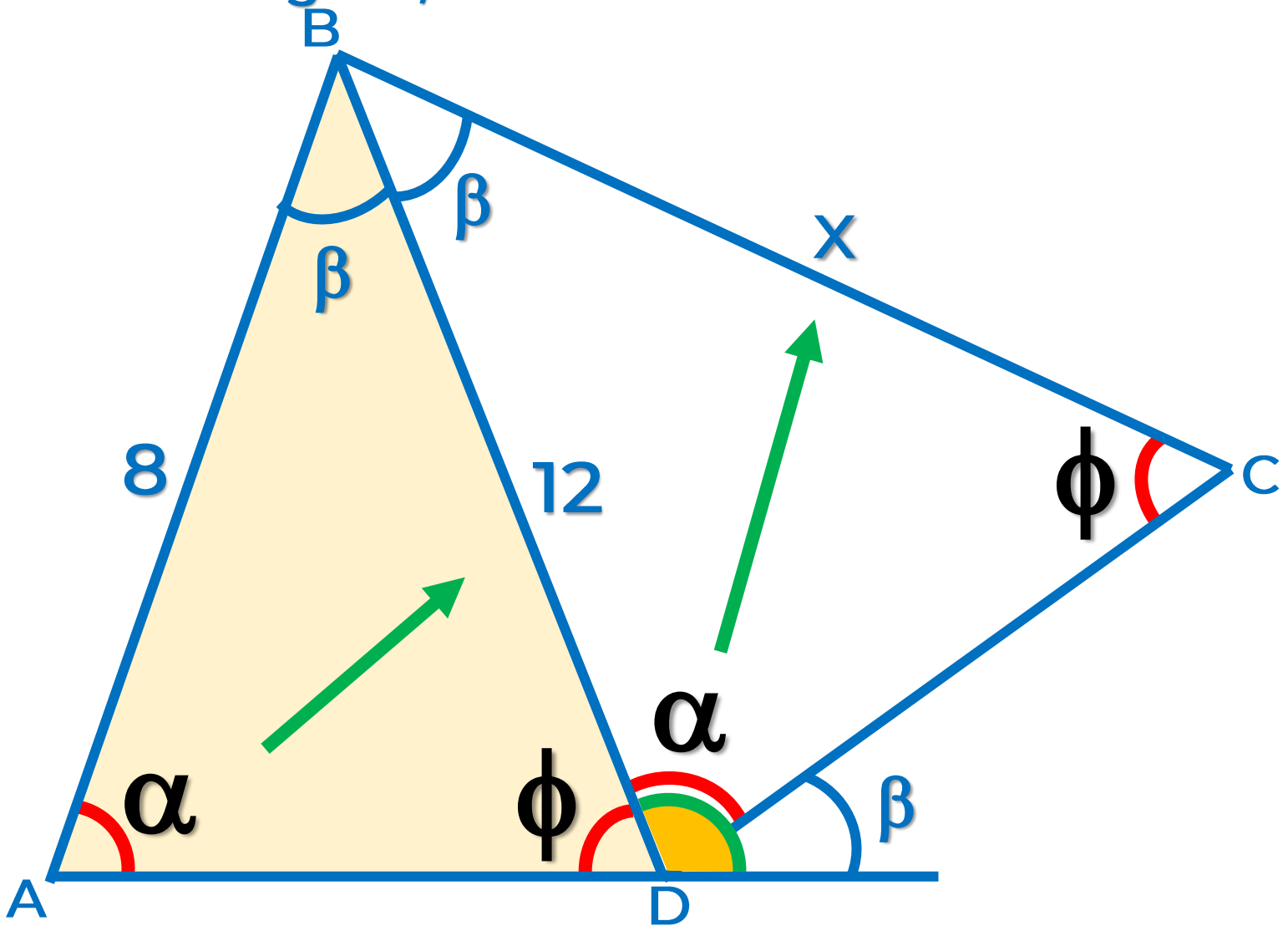
- Piden: x
- $\Delta BCD \sim \Delta ECA$

$$\frac{x}{12} = \frac{2}{8} \quad (2 \to 1,\ 8 \to 4)$$

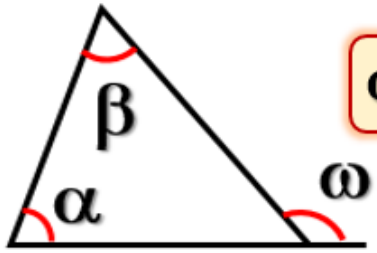
$$4x = 12$$

x = 3

4. En la figura, calcule x.



- Piden: x



$\omega = \alpha + \beta$

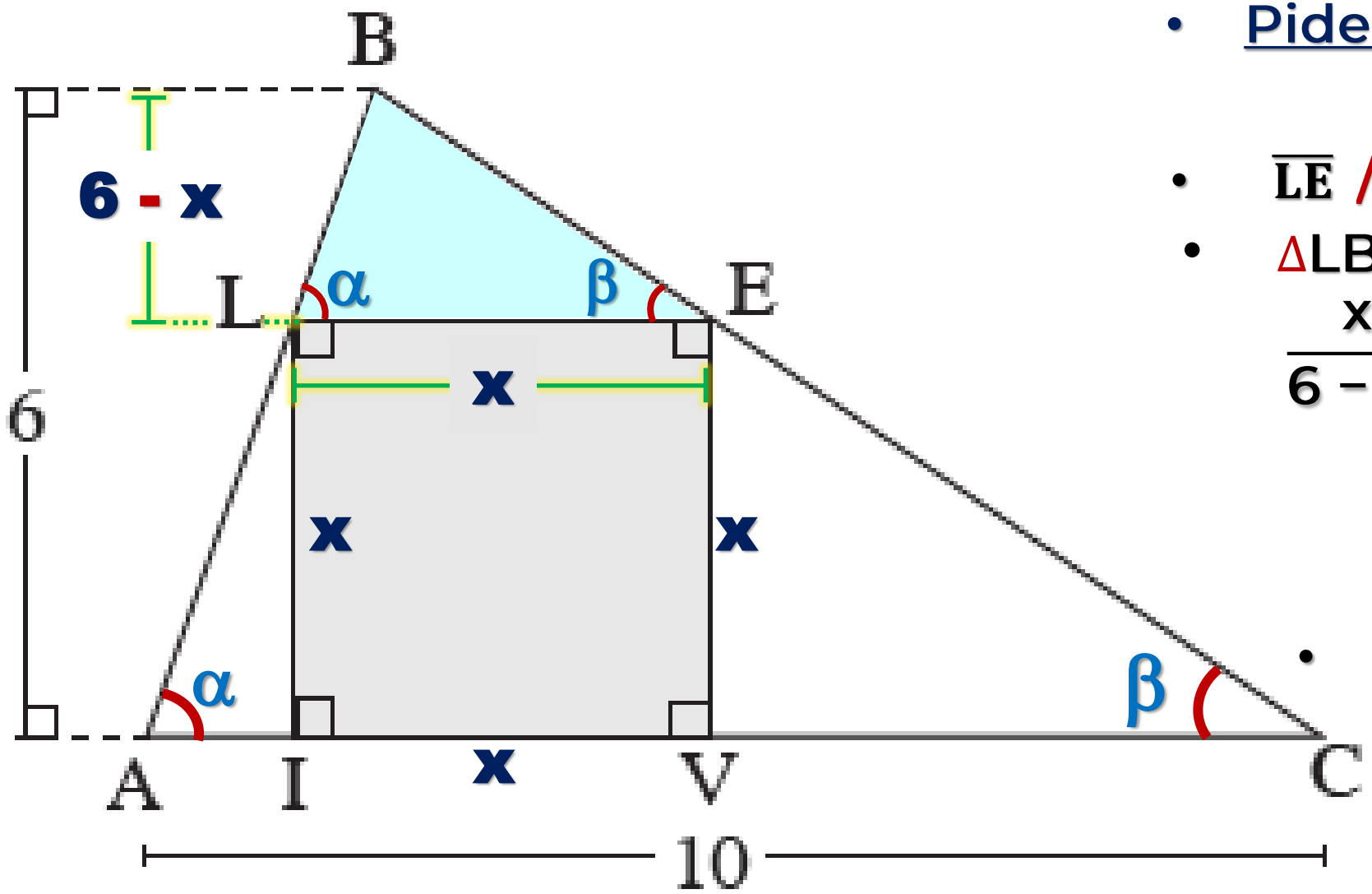
- $\Delta DBC \sim \Delta ABD$

$$\frac{x}{12} = \frac{\cancel{12}^{\,3}}{\cancel{8}_{\,2}}$$

$$2x = 36$$

$$x = 18$$

5. Calcule el perímetro de la región cuadrada LEVI.



- Piden: $2p_{LEVI}$

$$2p_{LEVI} = 4x \quad \text{... (1)}$$

- $\overline{LE} \parallel \overline{AC}$
- $\Delta LBM \sim \Delta ABC$

$$\frac{x}{6-x} = \frac{10}{6} \quad \begin{matrix}5\\3\end{matrix}$$

$$3x = 30 - 5x$$

$$8x = 30$$

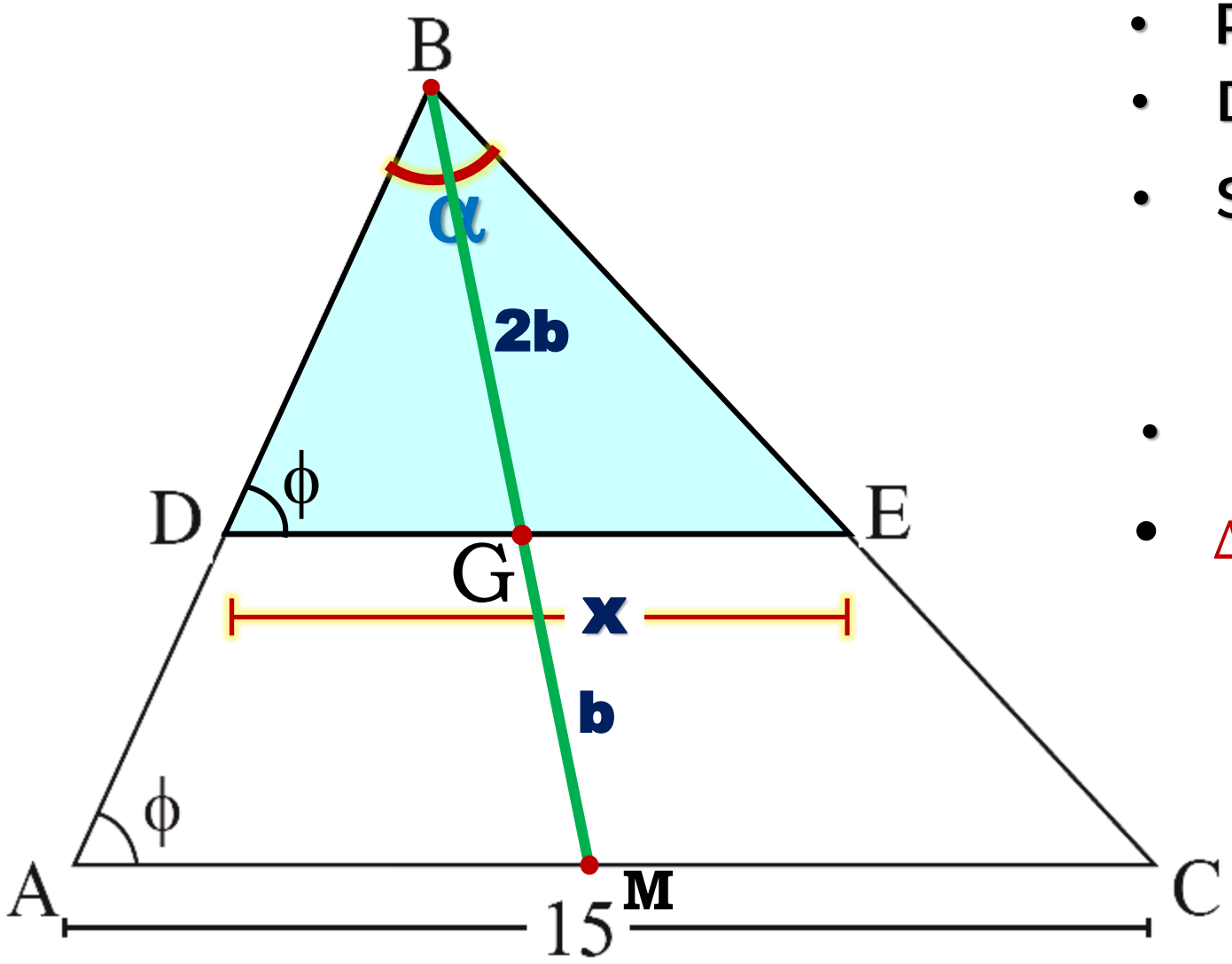
$$x = 15/4 \quad \text{...(2)}$$

- Reemplazando 2 en 1.

$$2p_{LEVI} = 4\left(\frac{15}{4}\right)$$

$$2p_{LEVI} = 15 \text{ u}$$

6. Calcule DE, si G es baricentro del ΔABC.



- Piden: x
- Dato: G es baricentro ΔABC
- Se traza la mediana $\overline{BM}$.

BG = 2b
GM = b

- $\overline{DE}$ // $\overline{AC}$
- ΔDBE ~ ΔABC

$$\frac{x}{15} = \frac{2b}{3b}$$

$$3x = 30$$

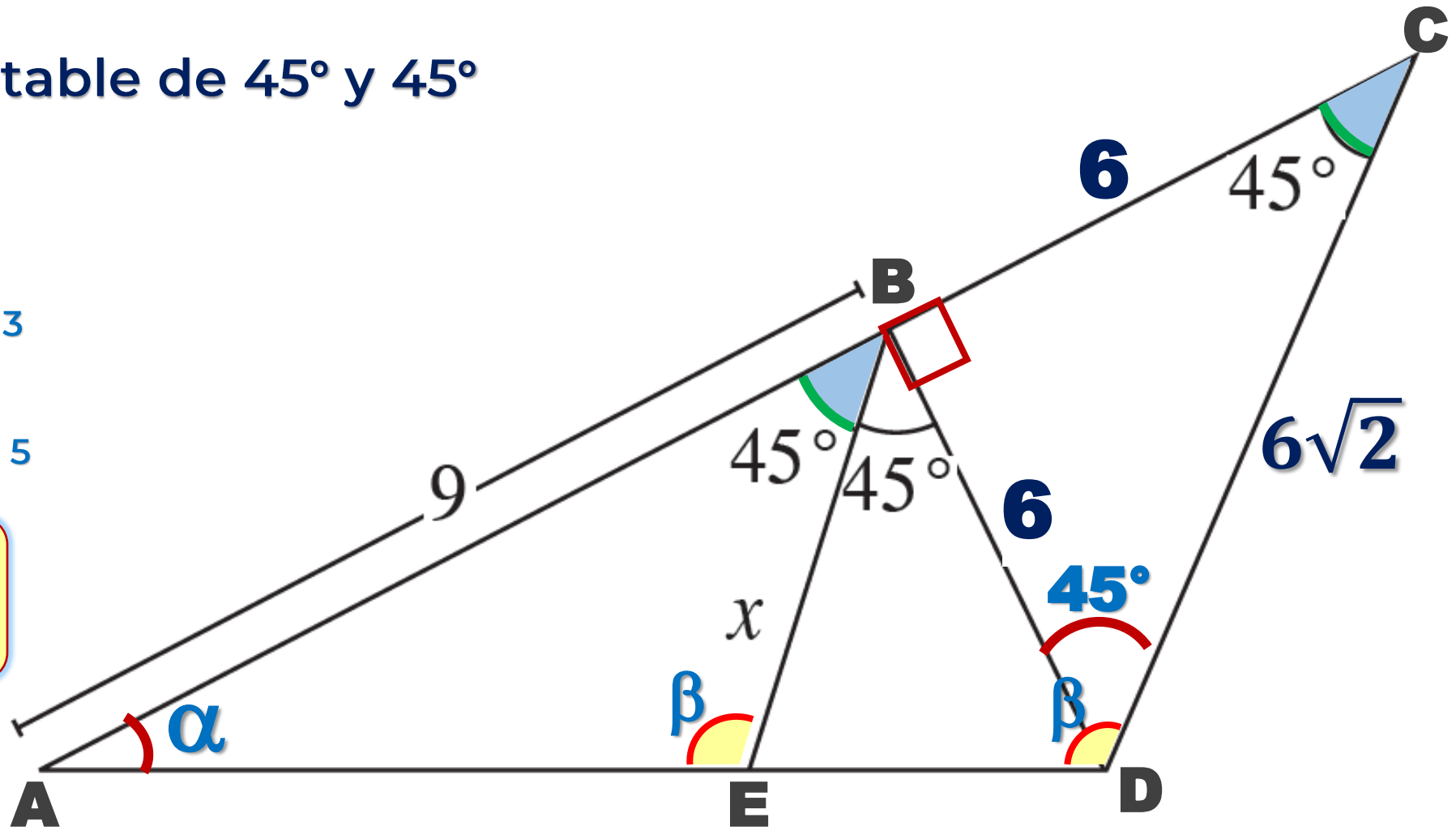
x = 10

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

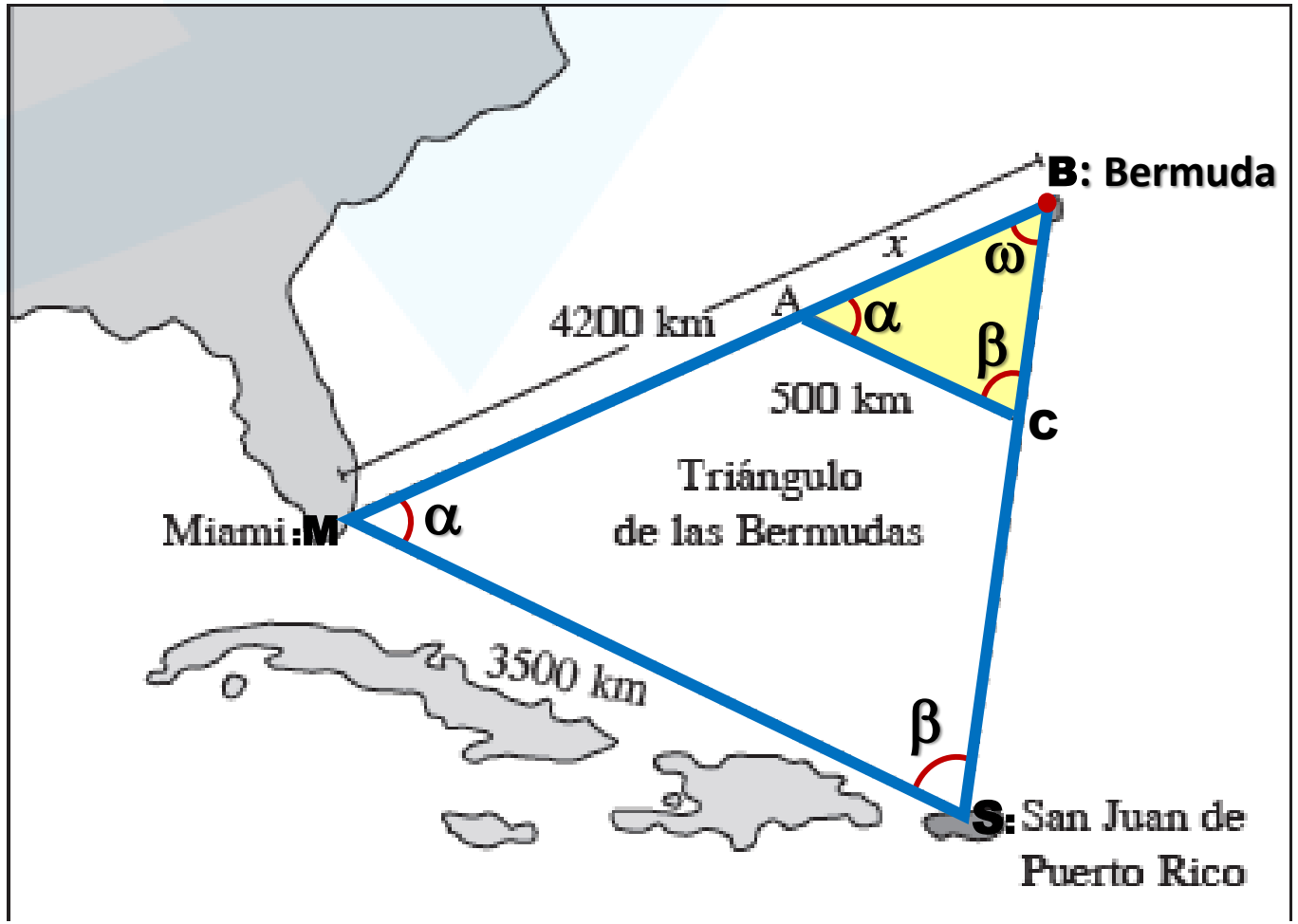
- Piden: x
- $\triangle$BCD : Notable de 45° y 45°
- $\overline{BE} \parallel \overline{CD}$
- $\Delta ABE \sim \Delta ACD$

$$\frac{x}{6\sqrt{2}} = \frac{\cancel{9}^{3}}{\cancel{15}_{5}}$$

$$x = \frac{18\sqrt{2}}{5}$$



8. Si se quiere limitar una región del Triángulo de las Bermudas con una franja $\overline{AC}$ paralela a $\overline{MS}$, AC = 500 km, halle AB.



- Piden: x
- $\overline{AC} \parallel \overline{MS}$
- $\Delta ABC \sim \Delta MBS$

$$\frac{x}{4200} = \frac{\cancel{500}^{\,1}}{\cancel{3500}_{\,7}}$$

$$7x = 4200$$

$$x = 600 \text{ km}$$