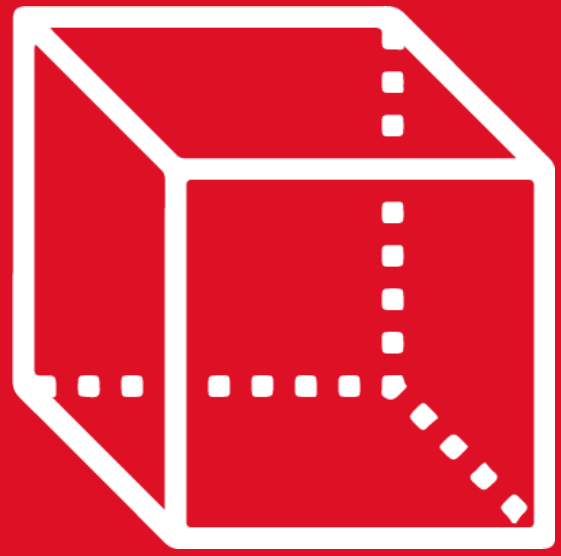
GEOMETRÍA

Capítulo 17



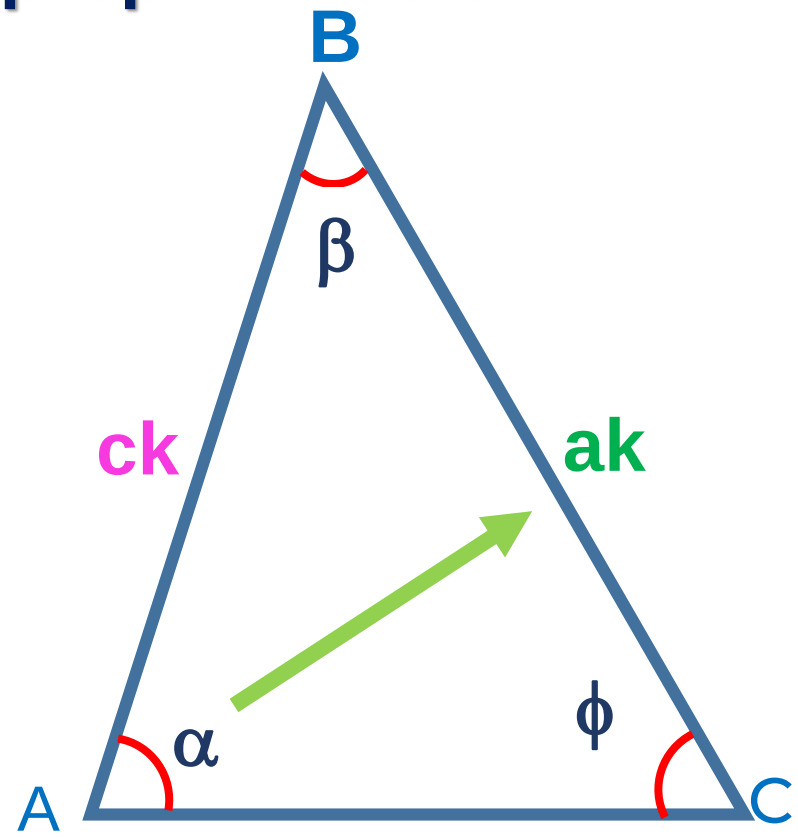
2 st

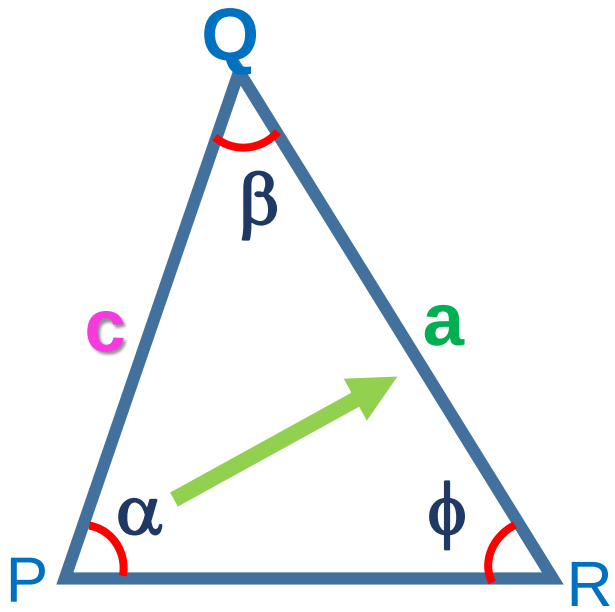
Triángulos Semejantes

SACO OLIVEROS

TRIÁNGULOS SEMEJANTES

Dos triángulos son semejantes si tienen tres pares de ángulos congruentes y sus lados homólogos son respectivamente proporcionales.



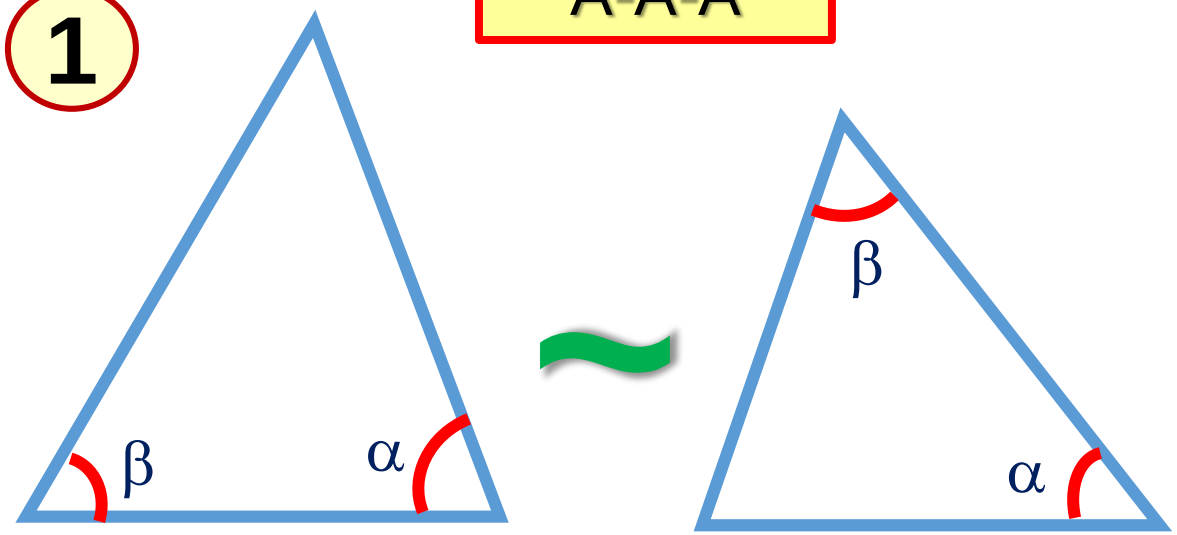


Si: $\triangle ABC \sim \triangle PQR$

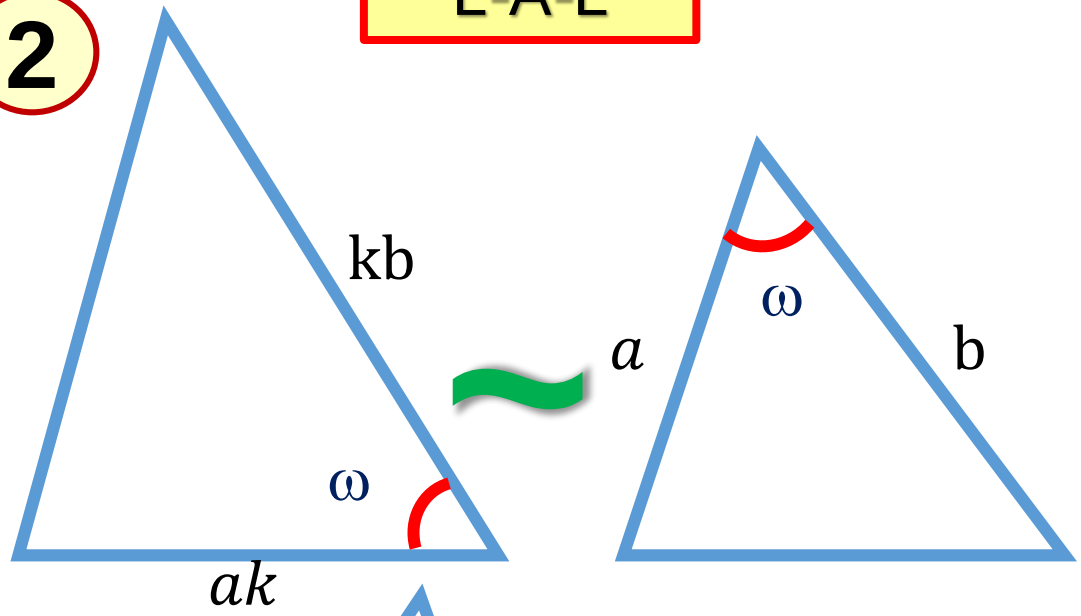
$$\frac{BC}{QR} = \frac{AC}{PR} = \frac{AB}{PQ} = K$$

Teoremas fundamentales de semejanza

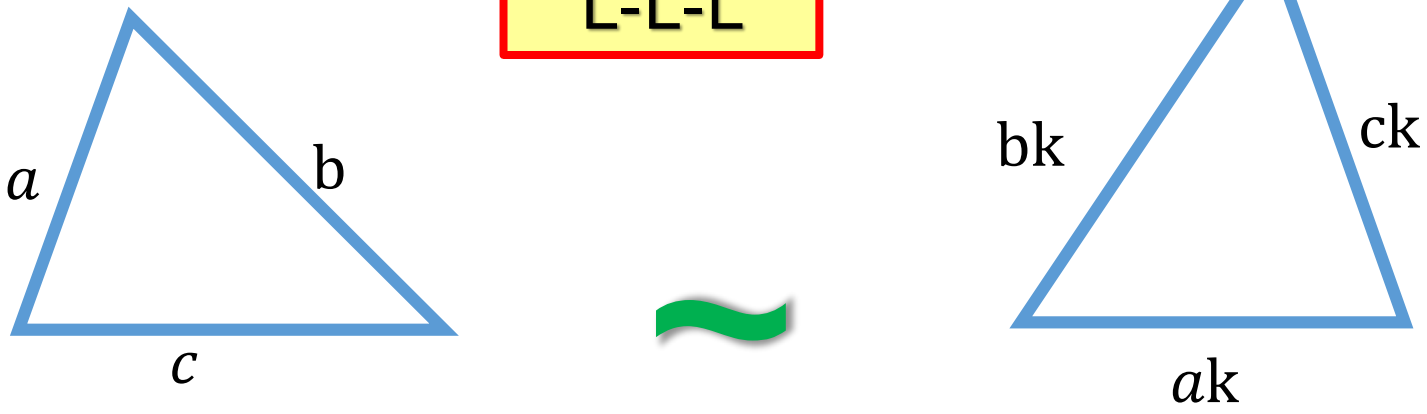
1 A-A-A



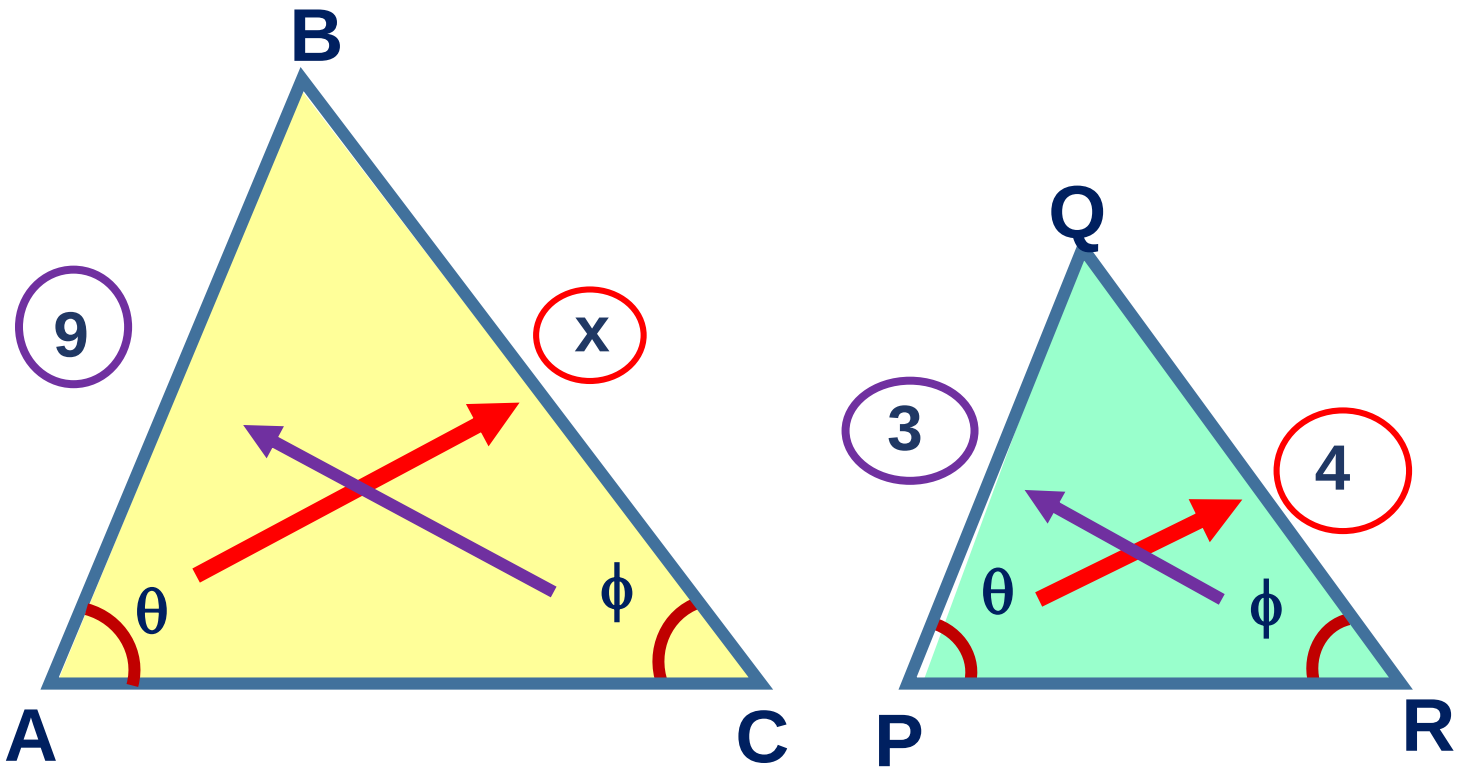
2 L-A-L



3 L-L-L



1. Halle el valor de x.



Piden: x

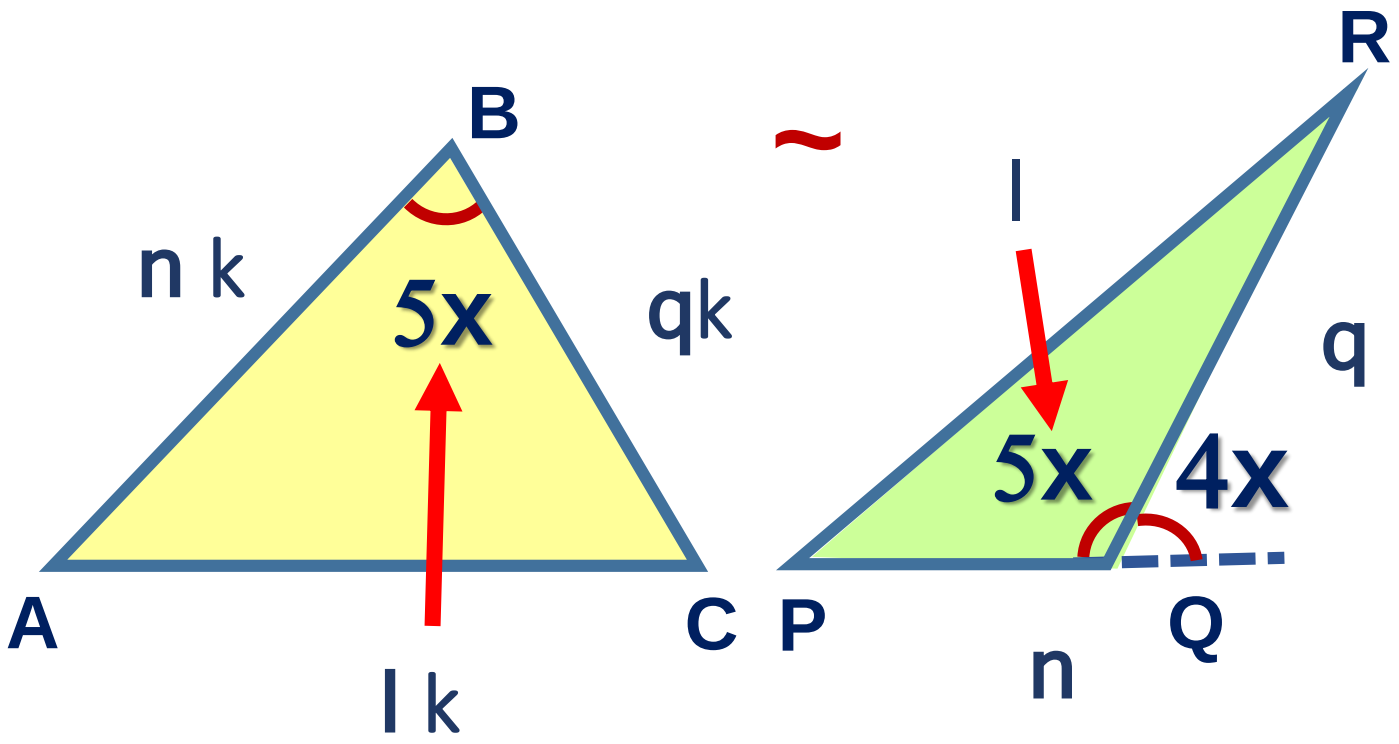
$\Delta ABC \sim \Delta PQR$

$$\frac{x}{4} = \frac{9}{3}$$

$$x = 3(4)$$

$$x = 12$$

2. Halle el valor de x.



Piden: x

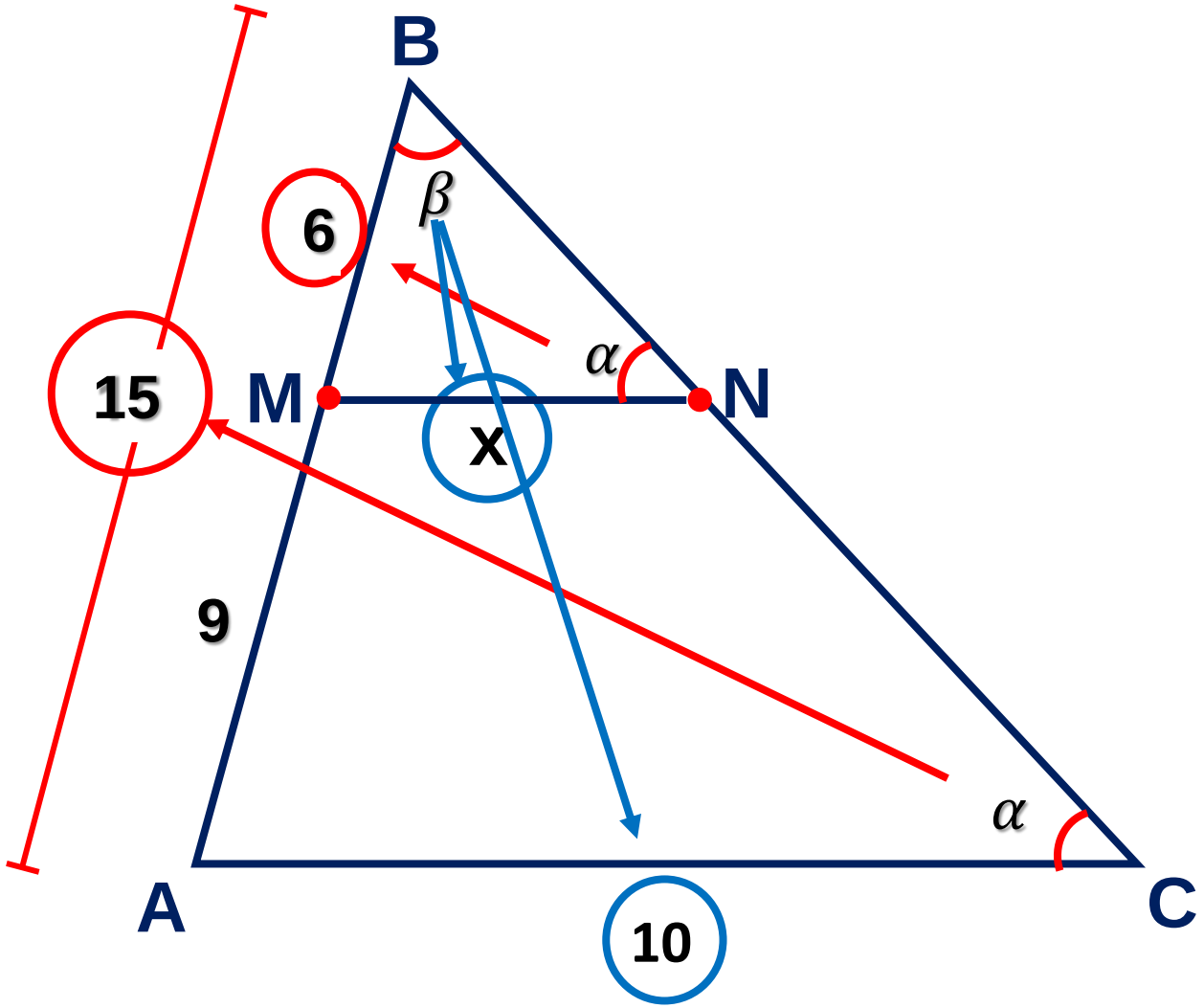
$\Delta ABC \sim \Delta PQR$

$5X + 4x = 180°$

$9x = 180°$

$x = 20°$

3. Si $\overline{MN} \parallel \overline{AC}$, halle el valor de x.



- Piden: x

$\Delta MBN \sim \Delta ABC$

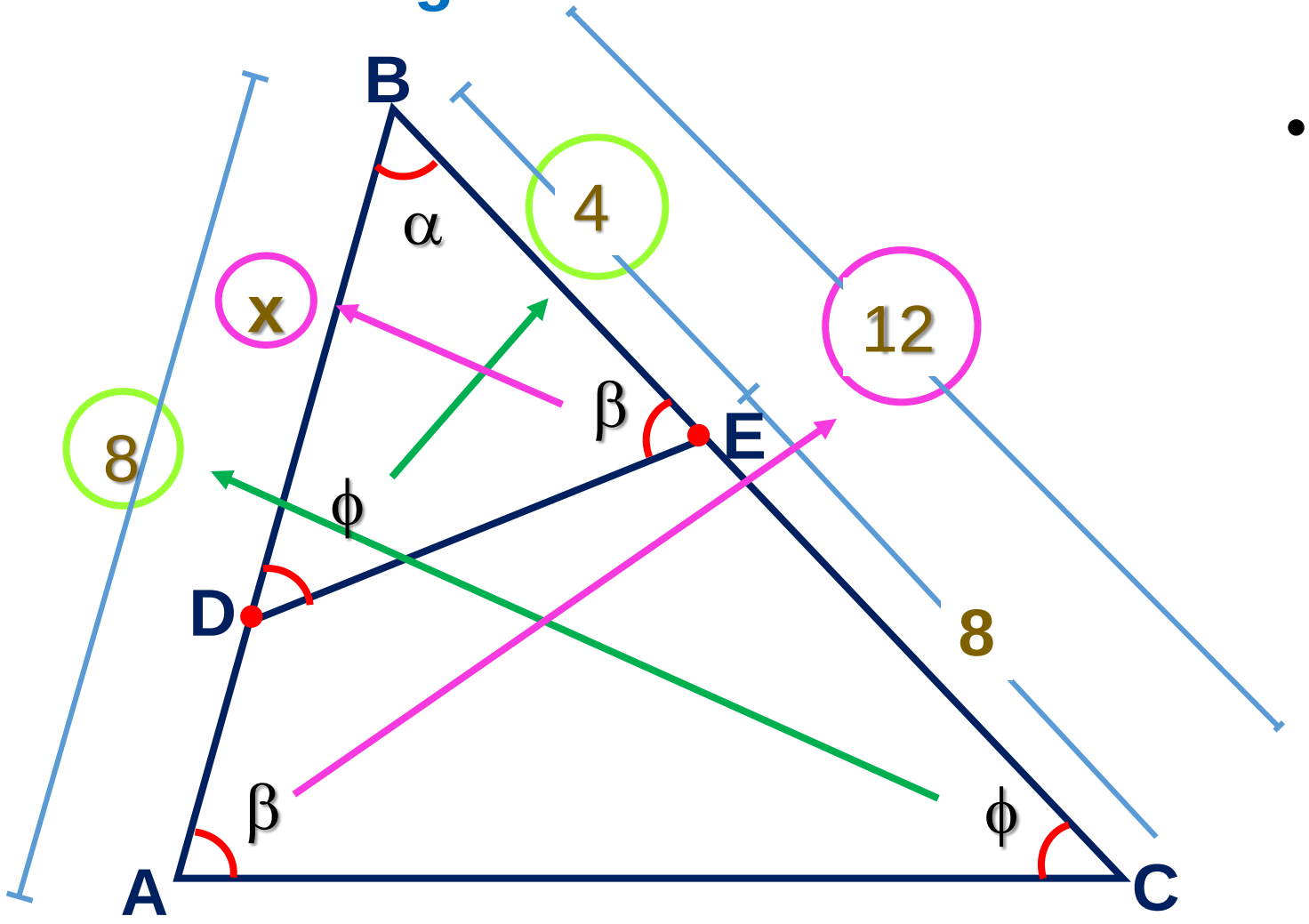
$$\frac{6}{15} = \frac{x}{10}$$

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

$$15x = 60$$

$$x = 4$$

4. En la figura calcule BD.



- Piden: x

$\Delta PBQ \sim \Delta CBA$

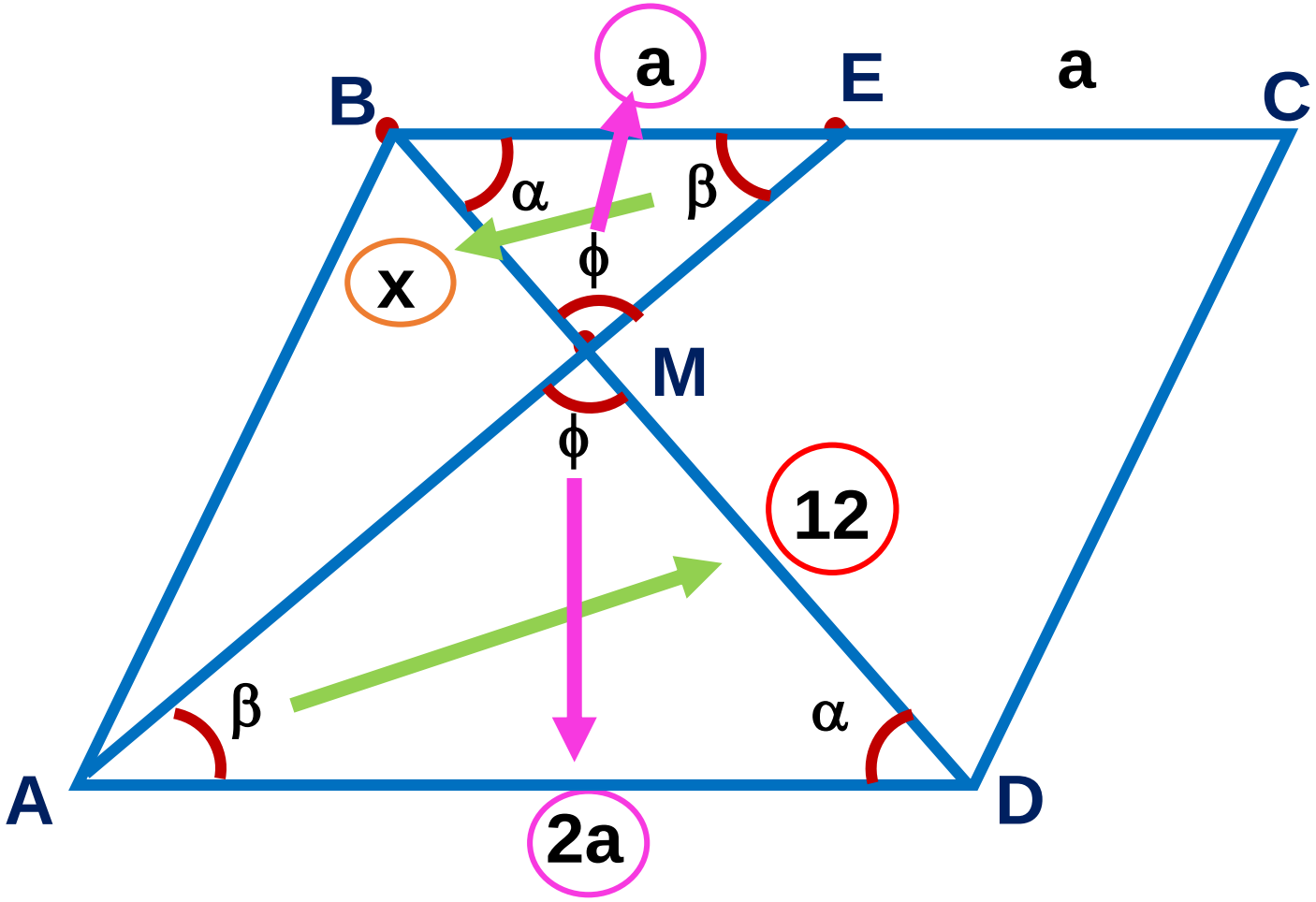
$$\frac{4}{8} = \frac{x}{12}$$

$$(8).(x) = (4).(12)$$

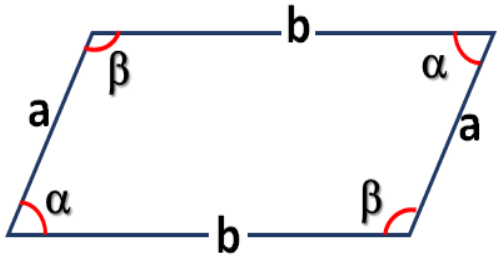
$$8x = 48$$

$$x = 6$$

5. ABCD es un romboide, BE = EC y MD = 12 cm. Calcule BM.



Piden: x

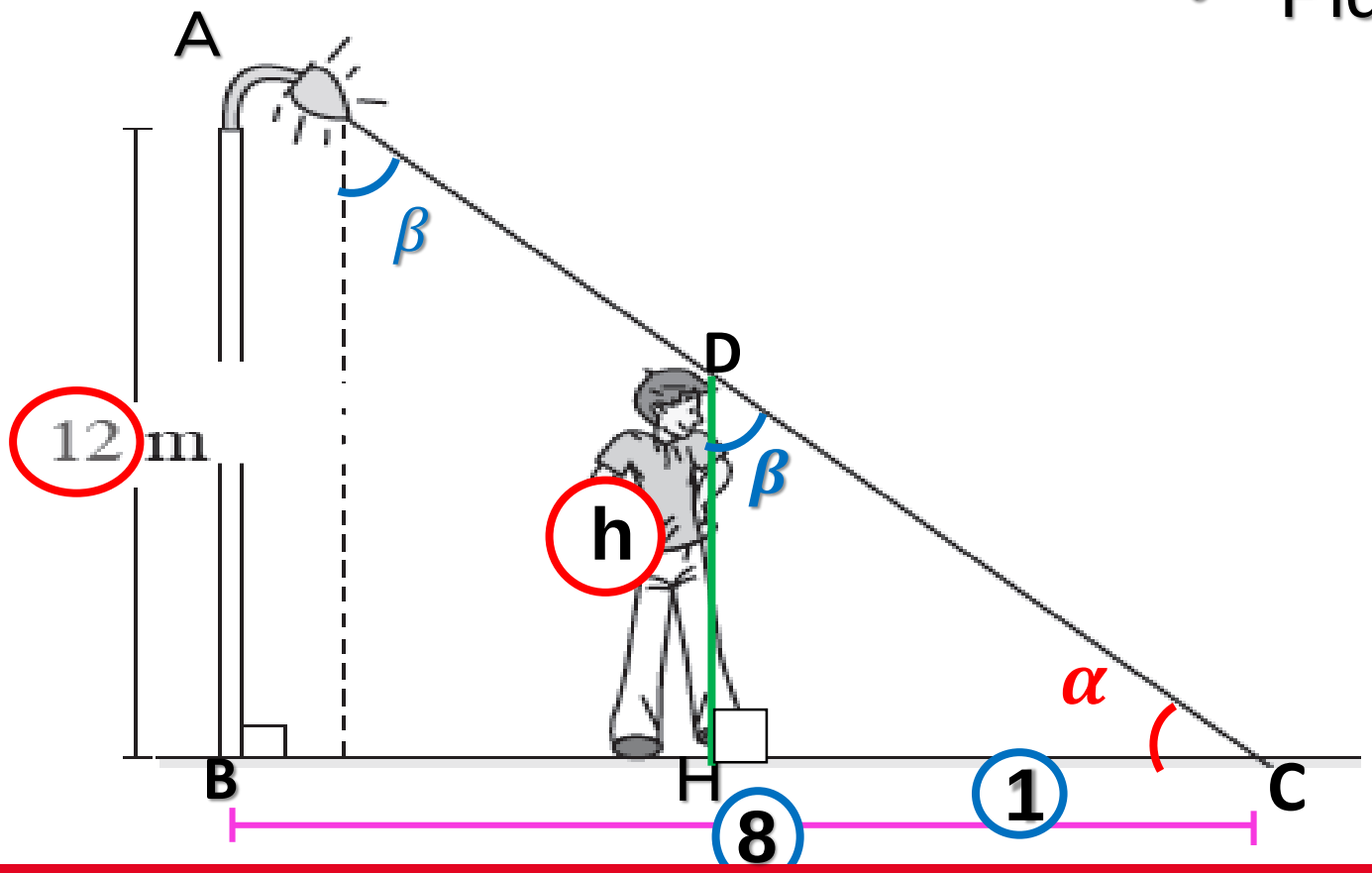


$\triangle AMD \sim \triangle BEM$

$$\frac{x}{12} = \frac{a}{2a}$$

$$x = 6$$

6. Un poste de 12 m de altura, genera una sombra de 8 m. Determine la altura de una persona que genera una sombra de 1 m.



- Piden: La altura de la persona = h

$\Delta ABC \sim \Delta DHC$

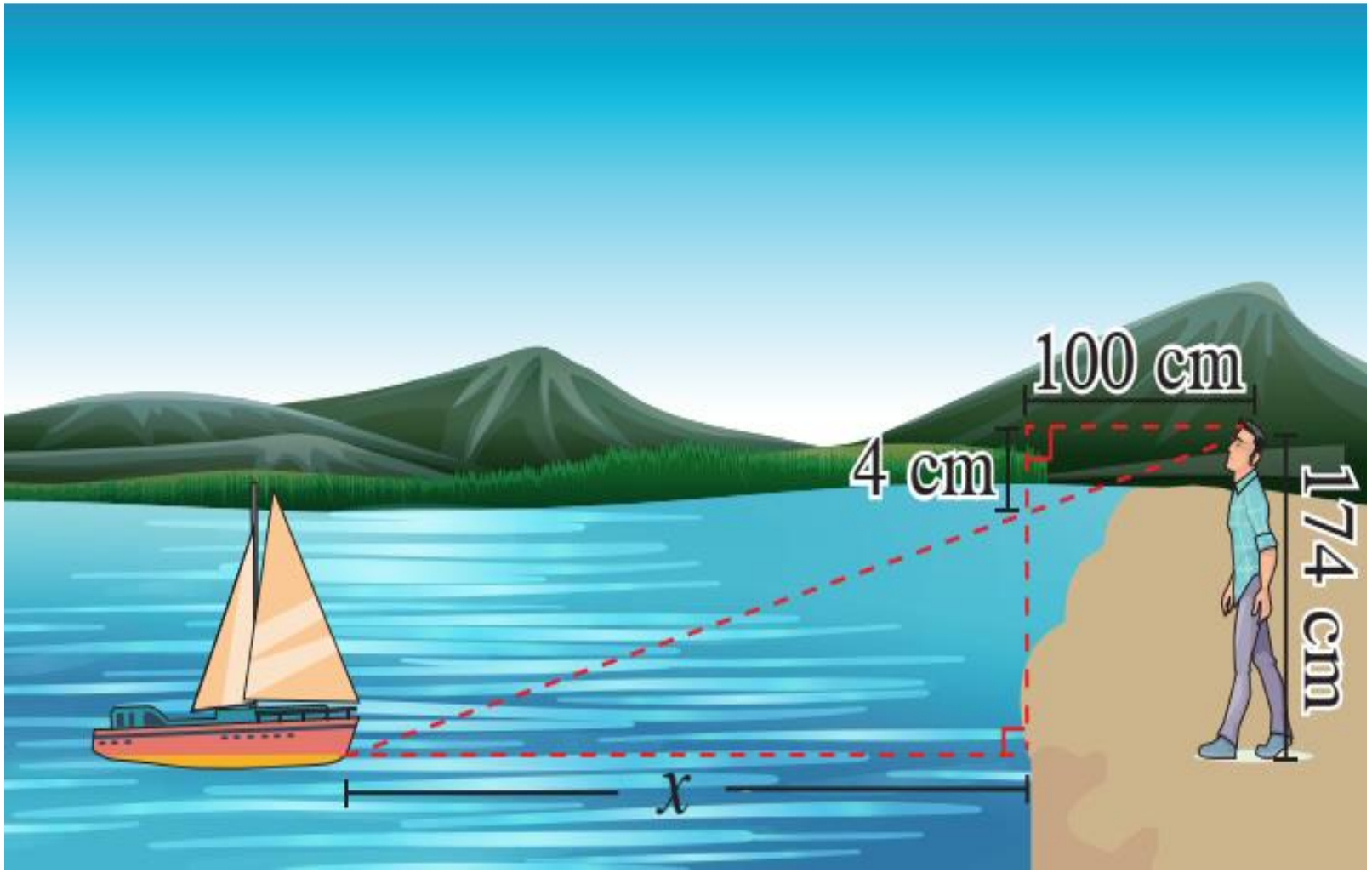
$$\frac{12}{h} = \frac{8}{1}$$

$$(12)(1) = (8)(h)$$

$$12 = 8h$$

$$h = 1{,}5 \text{ m}$$

7. Halle el valor de x.



- **Piden: x**

$\Delta ABC \sim \Delta DBE$

$$\frac{x}{100} = \frac{10}{4}$$

$$(4).(x) = (100).(10$$

$$4x = 1000$$

$$x = 250$$