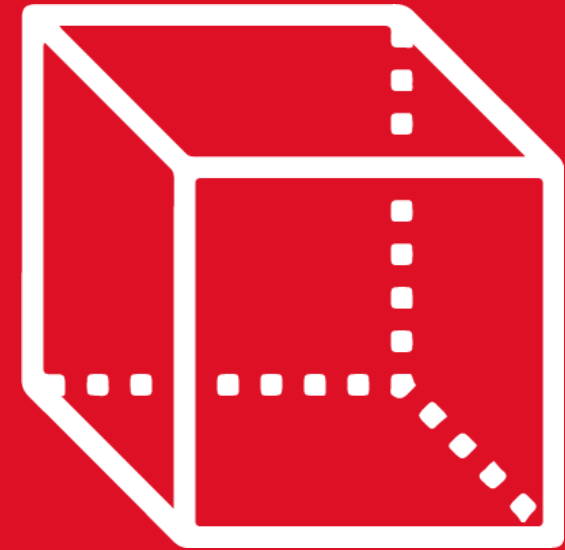




GEOMETRÍA

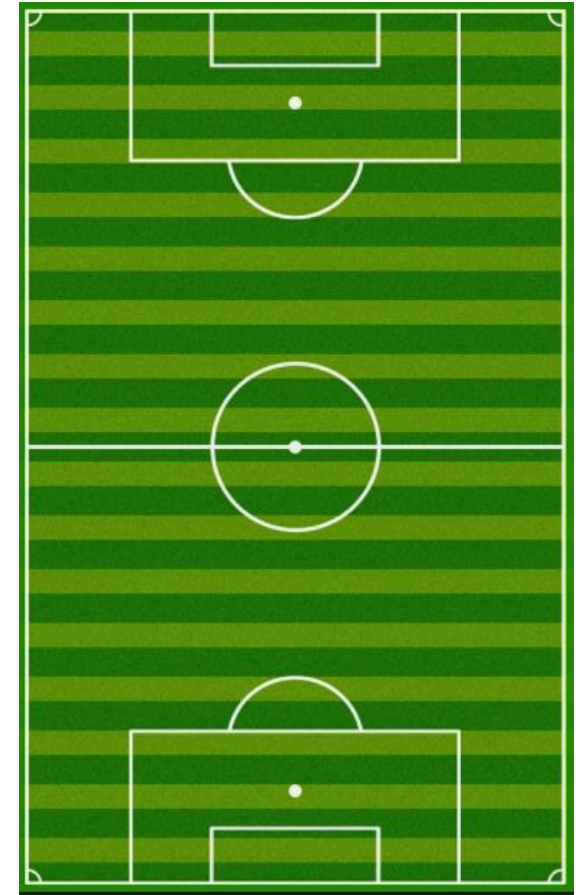
1st Chapter 14
SECONDARY

**PARALELOGRA
MO**



 **SACO OLIVEROS**

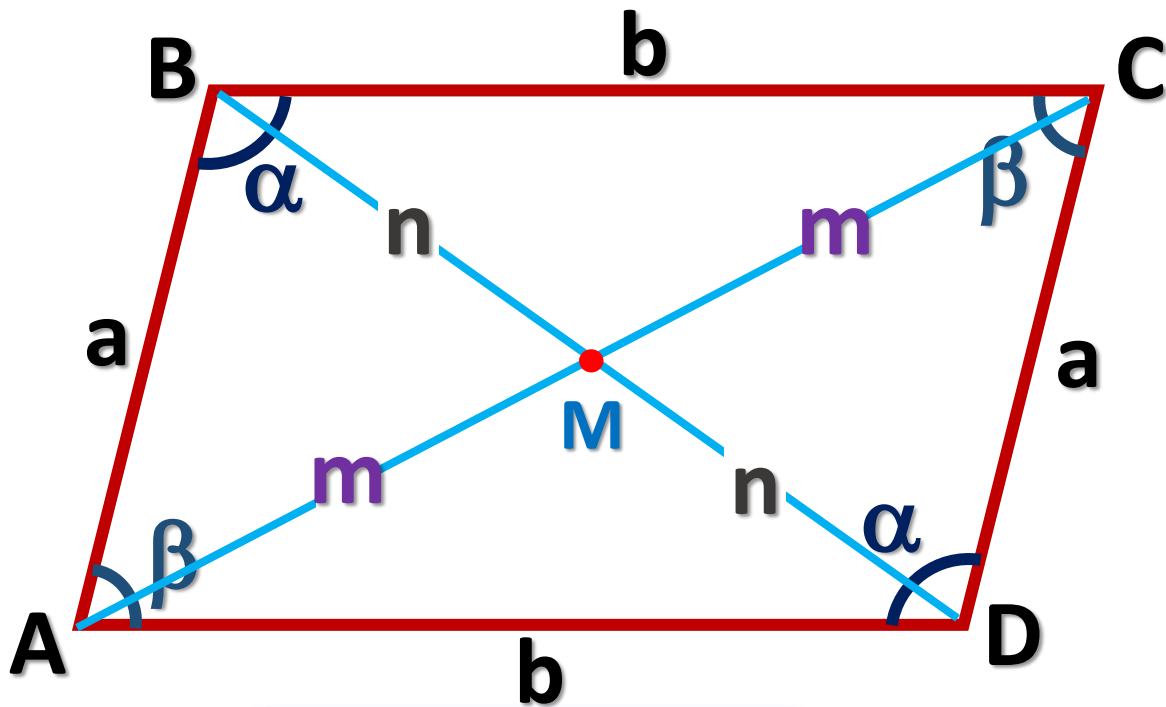
MOTIVATING | STRATEGY



PARALELOGRAM



Es aquel cuadrilátero cuyos lados opuestos son paralelos y congruentes.



$$\alpha + \beta = 180^\circ$$

 **ABCD** : paralelogramo

En el gráfico:

$$\overline{AB} \parallel \overline{CD}$$

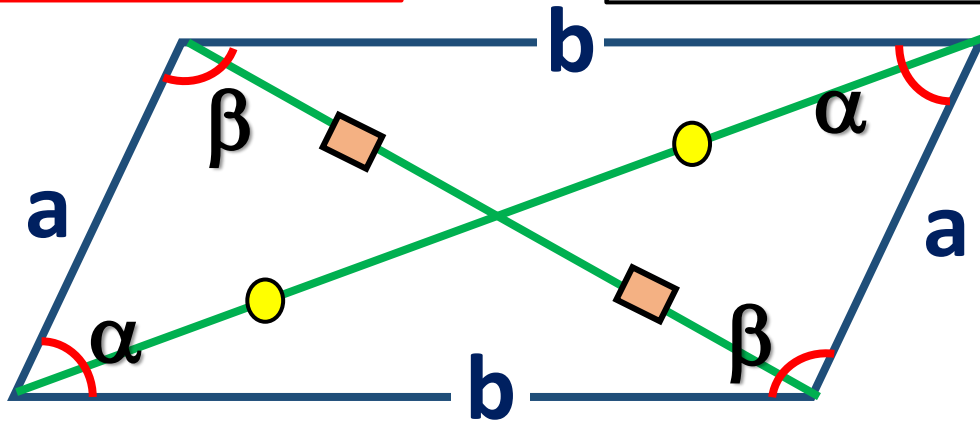
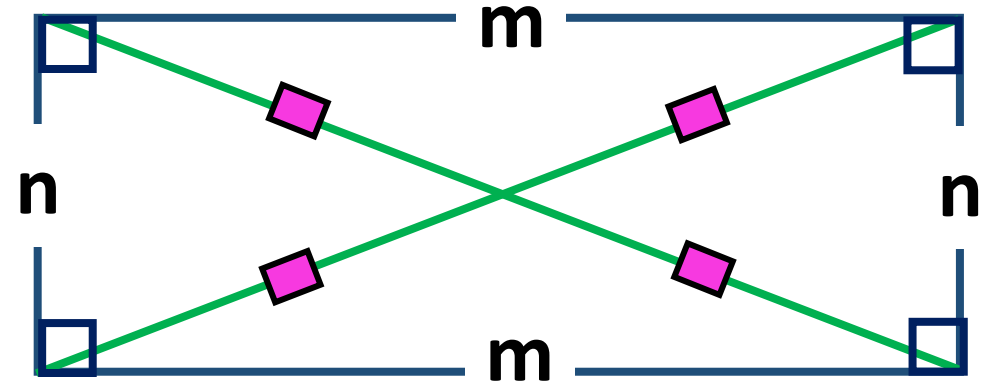
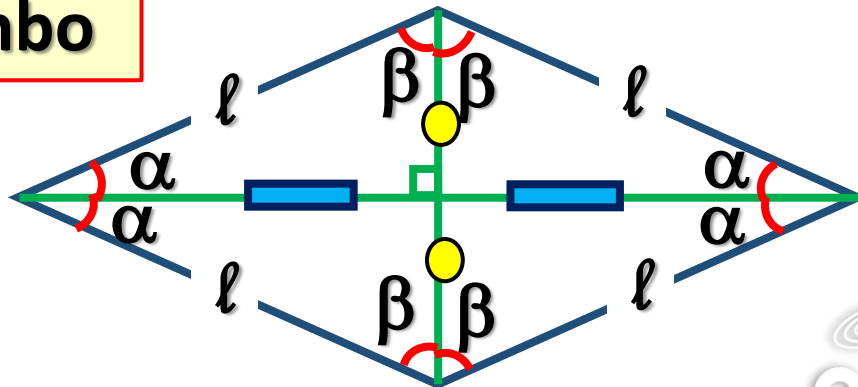
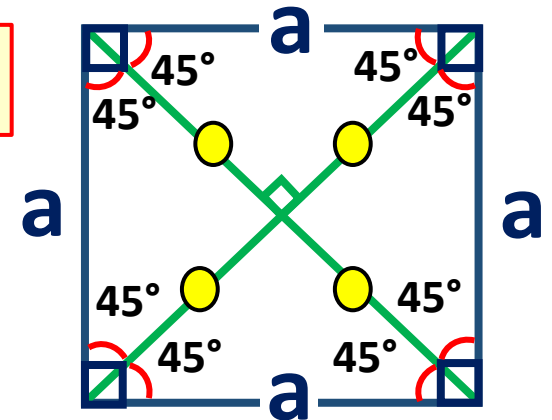
$$\overline{BC} \parallel \overline{AD}$$

$$AB = CD$$

$$BC = AD$$

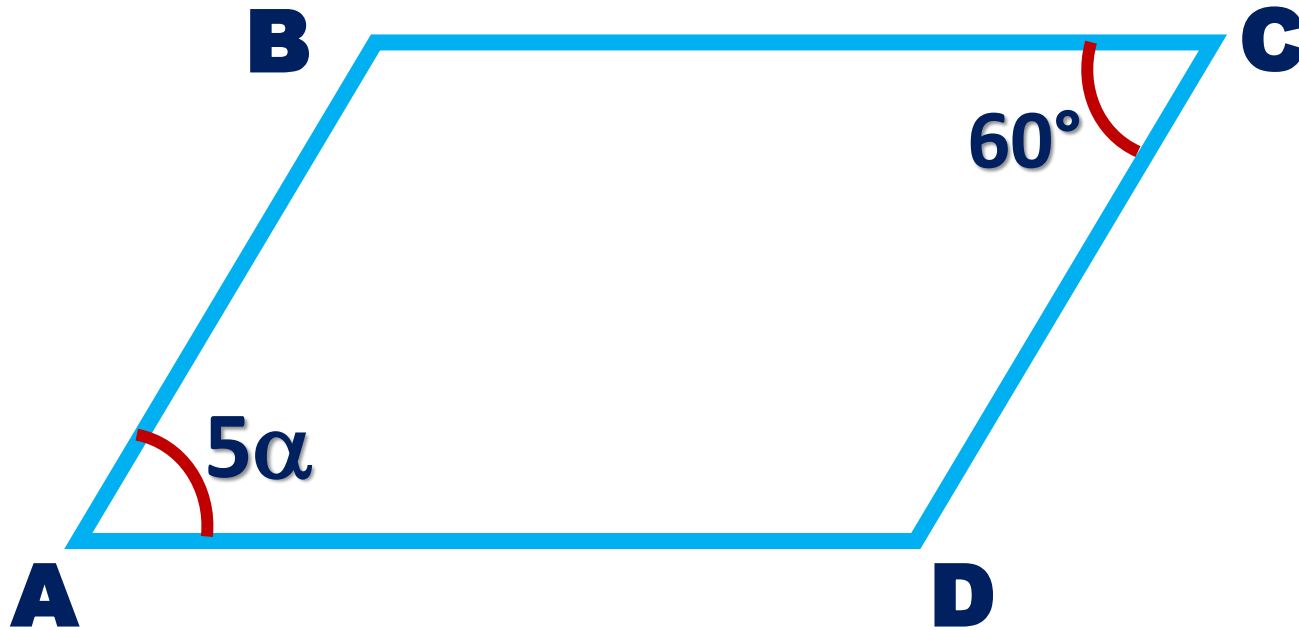
**Romboide**

$$\alpha + \beta = 180^\circ$$

**Rectángulo****Rombo****Cuadrado**

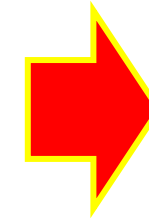
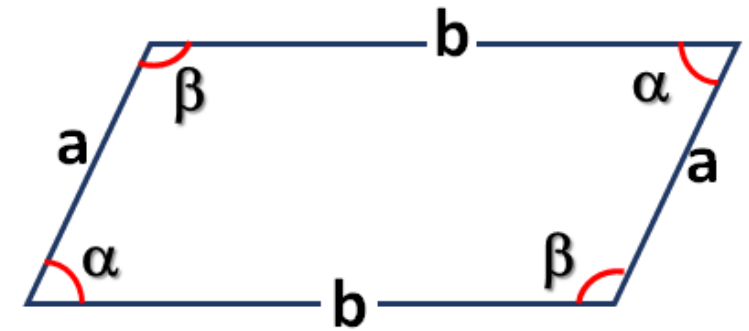
1. En un romboide ABCD, donde $m\angle BCD = 60^\circ$ y $m\angle BAD = 5\alpha$, halle el valor de α .

Resolución



Romboide

$$\alpha + \beta = 180^\circ$$



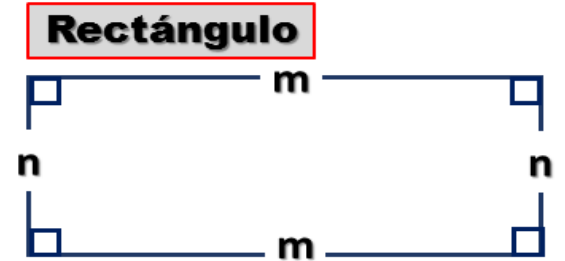
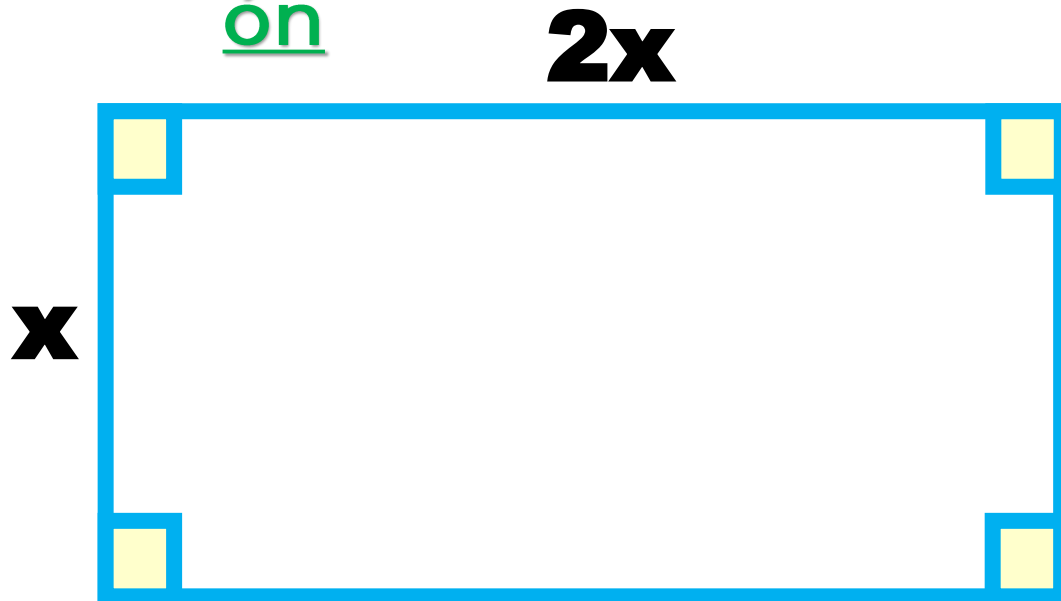
$$5\alpha = 60^\circ$$

$$\alpha = 12^\circ$$



2. El perímetro de una región rectangular es 30 m. Si la longitud del largo es el doble de la longitud del ancho. Halle la longitud del largo.

Resolución



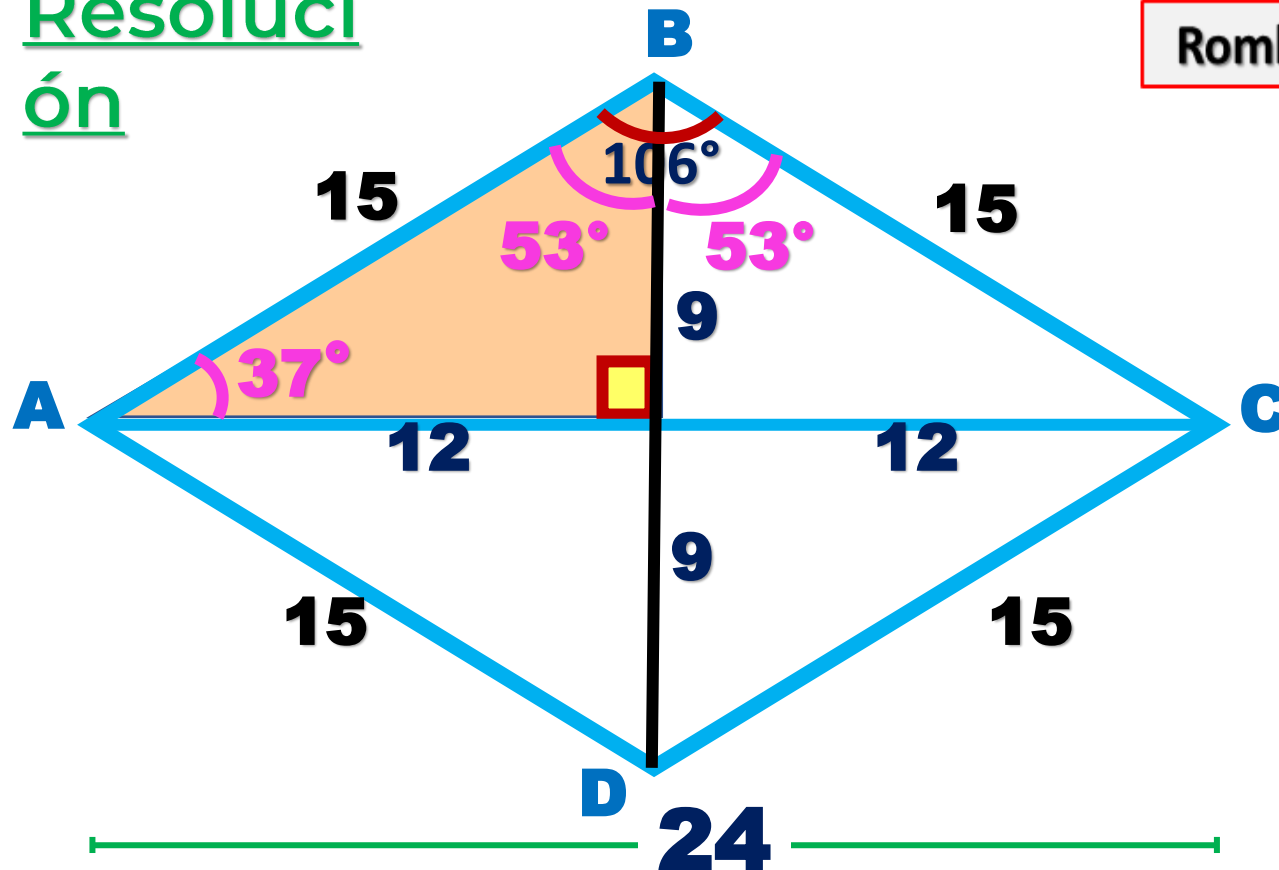
Por dato $2p \square = 30m$

$$\begin{aligned}
 x + 2x + x + 2x &= 30 \\
 6x &= 30 \\
 x &= 5
 \end{aligned}$$

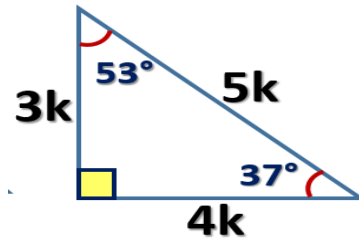
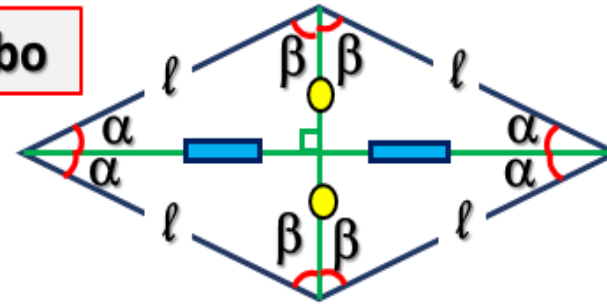
$$2x_{(LARGO)} = 10 m$$

3. En un rombo ABCD, $m\angle ABC = 106^\circ$ y $AC = 24$ m. Calcule el perímetro del rombo.

Resolución



Rombo

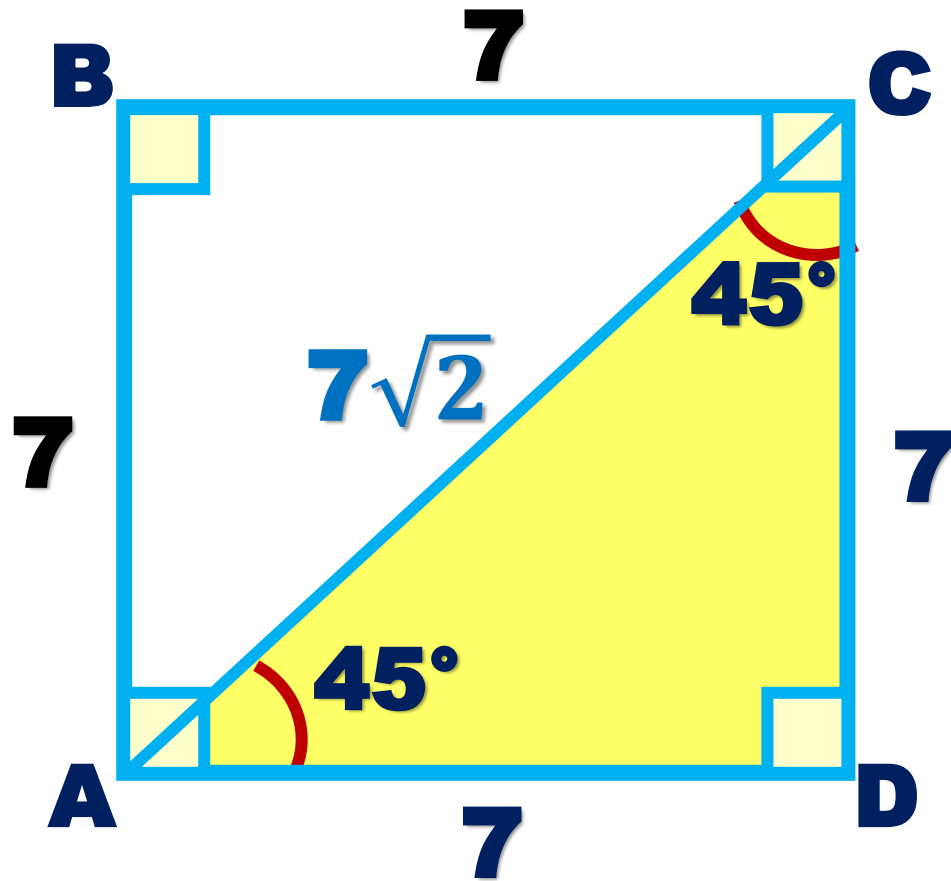


$$2p \diamond = 15 + 15 + 15 + 15$$

$$2p \diamond = 4 (15)$$

$$2p \diamond = 60$$

4. Calcule el perímetro del cuadrado ABCD.

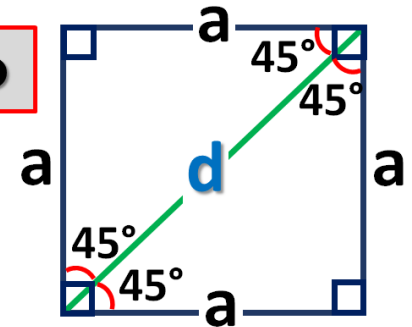


Resoluci

ón

Cuadrado

$$d = a\sqrt{2}$$

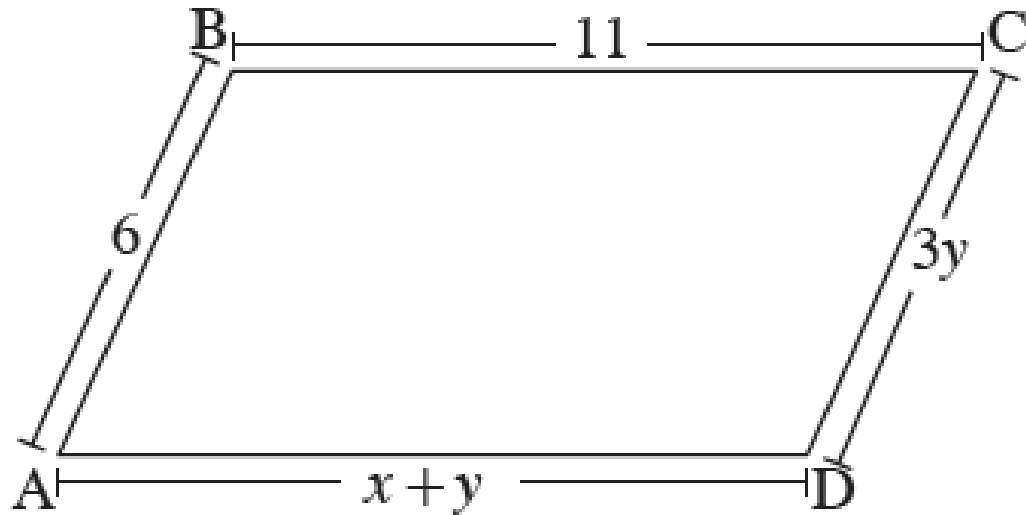


$$2p_{\square} = 7 + 7 + 7 + 7$$

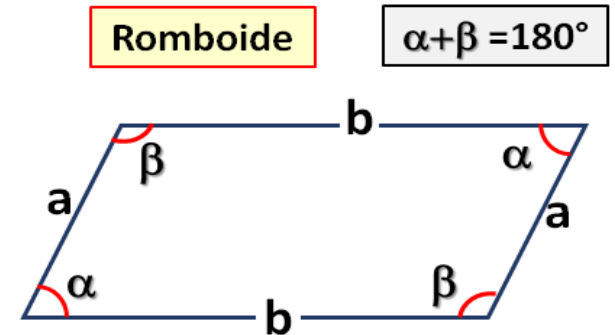
$$2p_{\square} = 4 (7)$$

$$2p_{\square} = 28$$

5. Si ABCD es un romboide, halle el valor de x .



Resolución

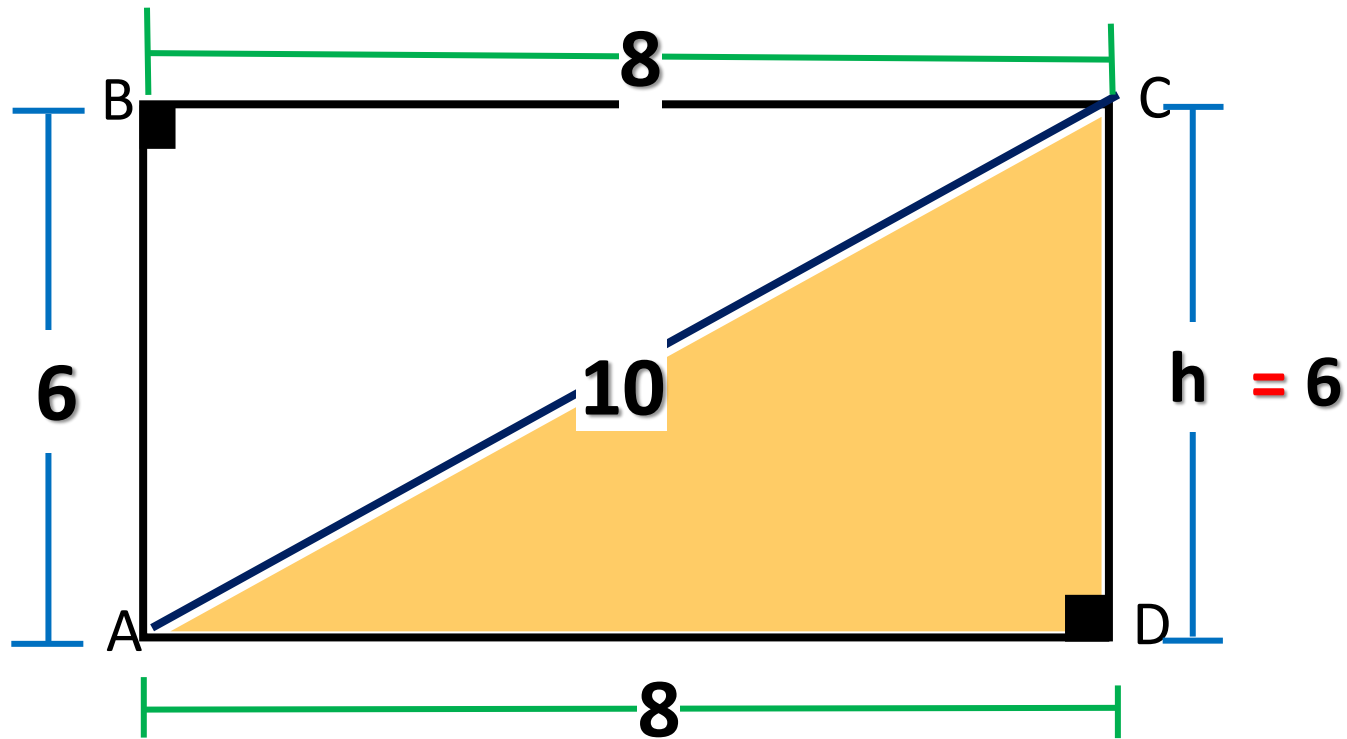


Lados opuestos de igual longitud

- $AB = CD$
 $6 = 3y$
 $y = 2$

- $AD = BC$
 $x + y = 11$
 $x + 2 = 11$
 $x = 9$

6. Calcule el perímetro del rectángulo.



Perímetro del rectángulo

$$2p \square = 6 + 8 + 6 + 8$$

Resolución
n $\triangle ABC$ (Teor. Pitágoras)

$$10^2 = 8^2 + h^2$$

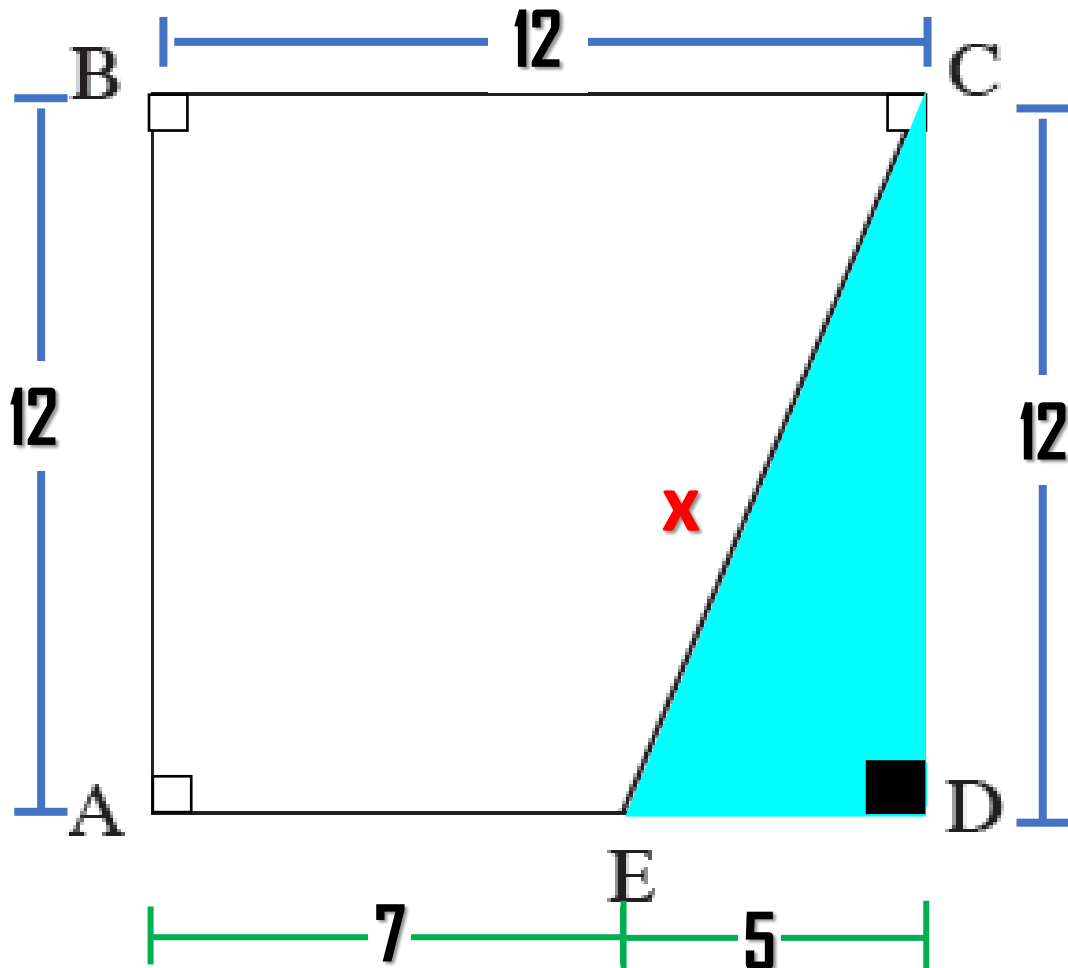
$$100 = 64 + h^2$$

$$36 = h^2$$

$$6 = h$$

$$2p \square = 28$$

7. En el cuadrado ABCD, $AE = 7$ y $ED = 5$. Halle CE.



Resolución

• ABCD (Cuadrado)

$$AB = BC = CD = AD = 12$$

• $\triangle EDC$ (Teor. Pitágoras)

$$x^2 = 5^2 + 12^2$$

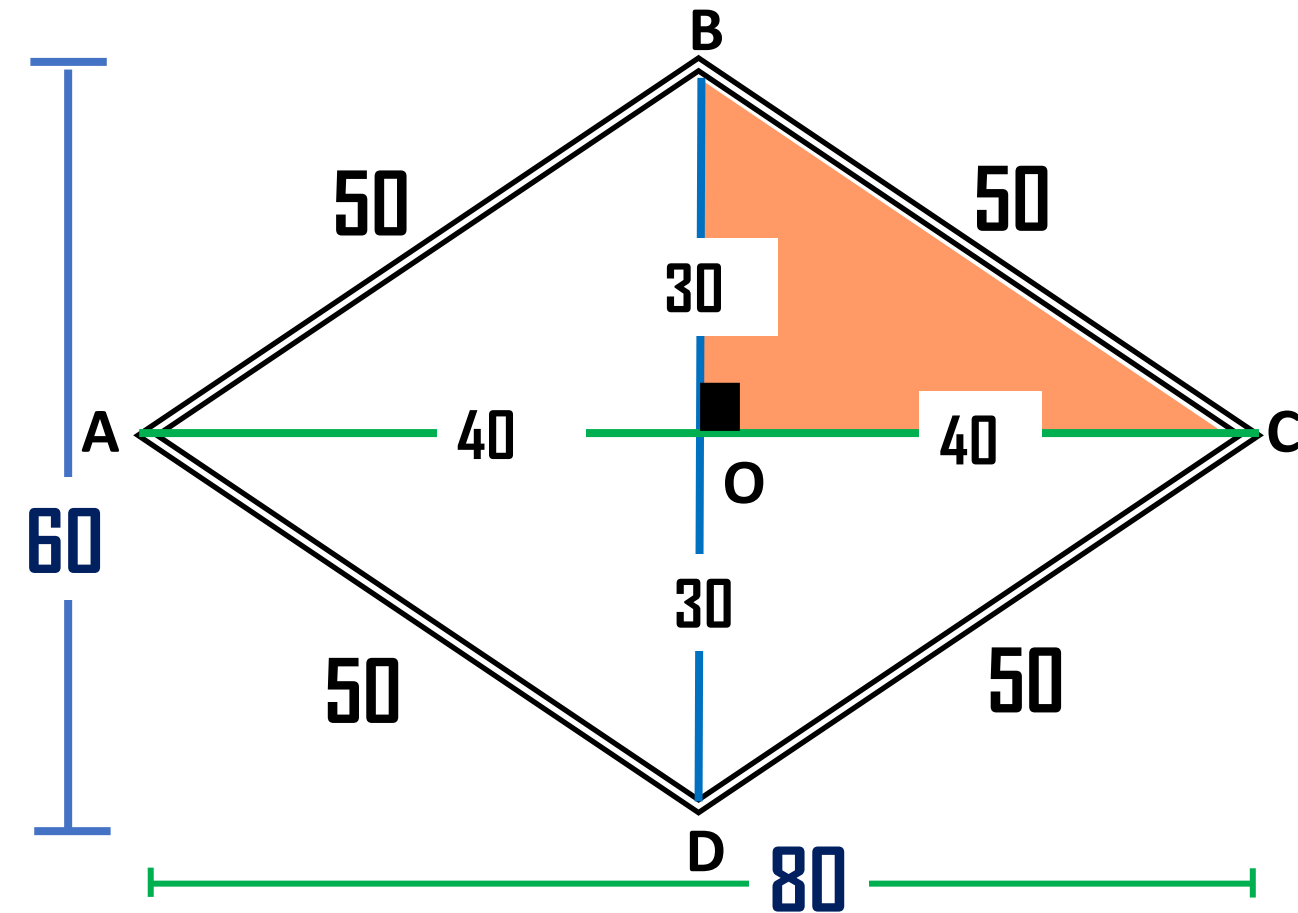
$$x^2 = 25 + 144$$

$$x^2 = 169$$

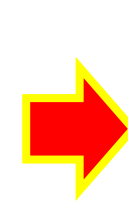
$$x = CE = 13$$



8. Por seguridad, se colocan dos varillas de 80cm y 60cm en una ventana que está determinada por un rombo. Calcule el perímetro de dicha ventana.



Resolución
ABC
 (Rombo)



$$\left\{ \begin{array}{l} AO = OC = 40 \\ BO = OD = 30 \end{array} \right.$$

(Teor. Pitágoras) $BC^2 = 30^2 + 40^2$

$$BC = 50$$

$$2p_{\diamond} = 50 + 50 + 50 + 50$$

$$2p_{\diamond} = 200 \text{ cm}$$