ASOCIACIÓN EDUCATIVA
SACO OLIVEROS

GEOMETRY

Chapter 2

V
LEVEL

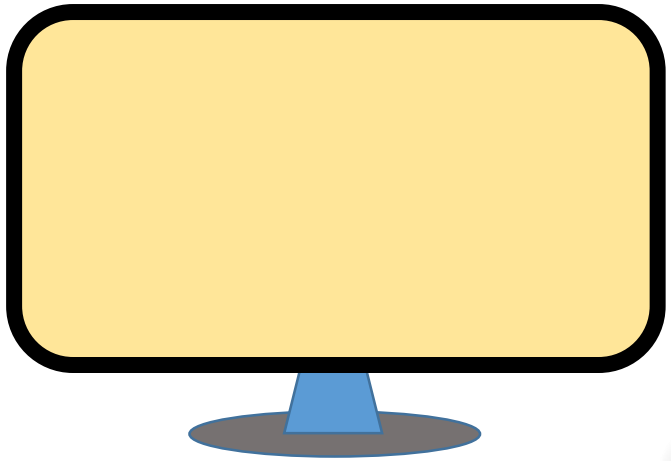
Cuadriláteros

GEOMETRY

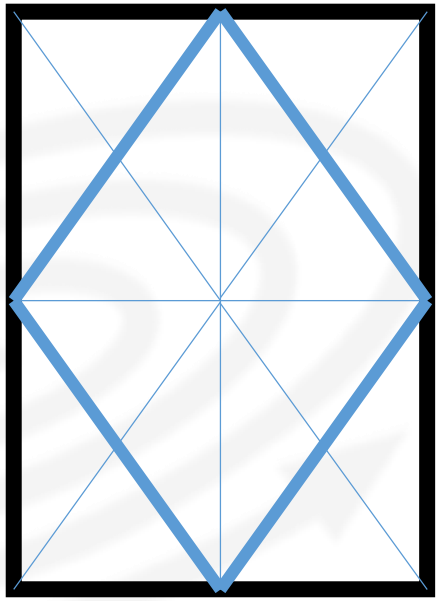
Índice

MOTIVATING STRATEGY

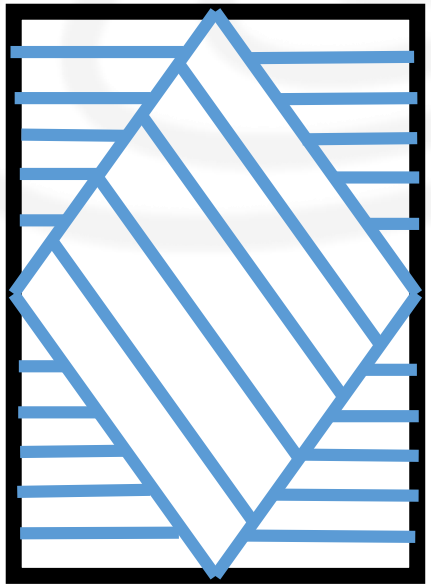
Rectángulo



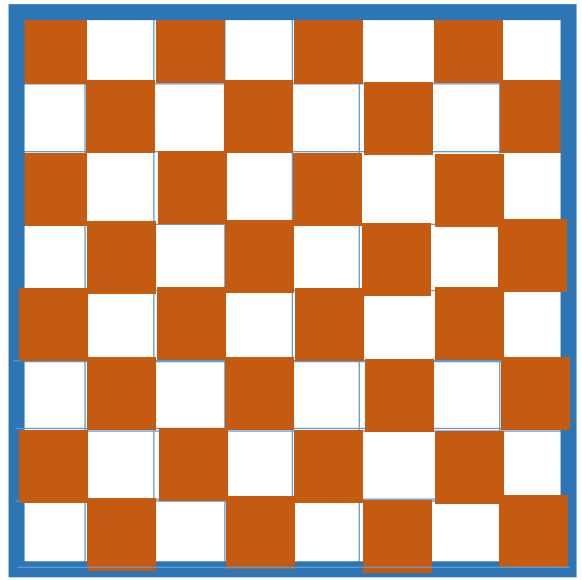
Rombo



Paralelogramo

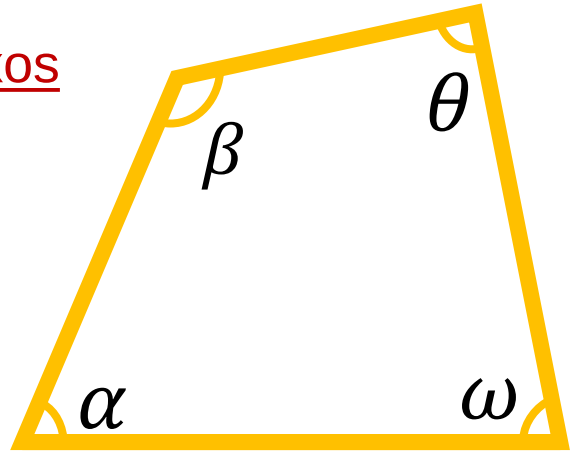


Cuadrado



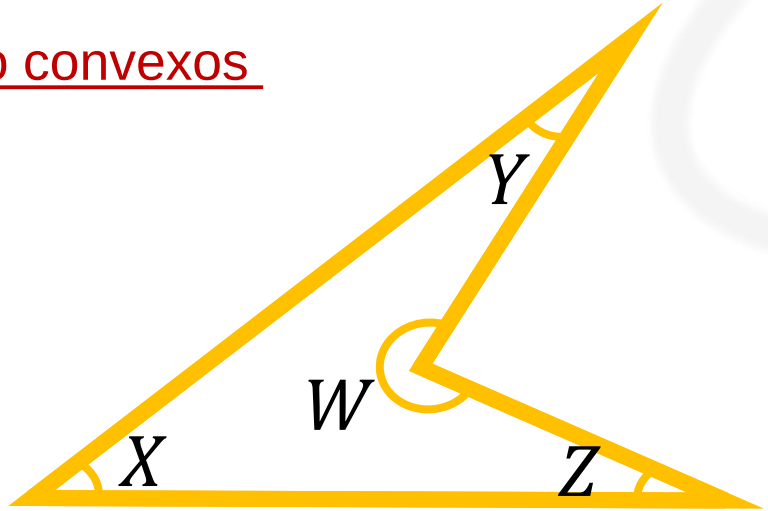
CUADRILÁTERO

Convexos



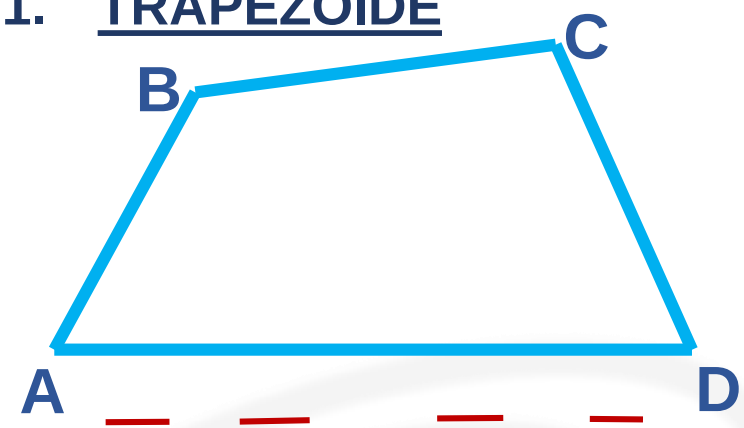
$\alpha+\beta+\theta+\omega= 360^0$

No convexos



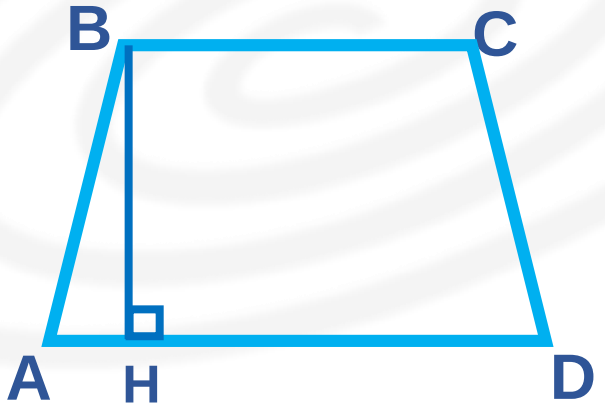
$X + Y + Z + W = 360^0$

1. TRAPEZOIDE



$\overline{AB} \not\parallel \overline{CD}$ y $\overline{BC} \not\parallel \overline{AD}$

2. TRAPECIO



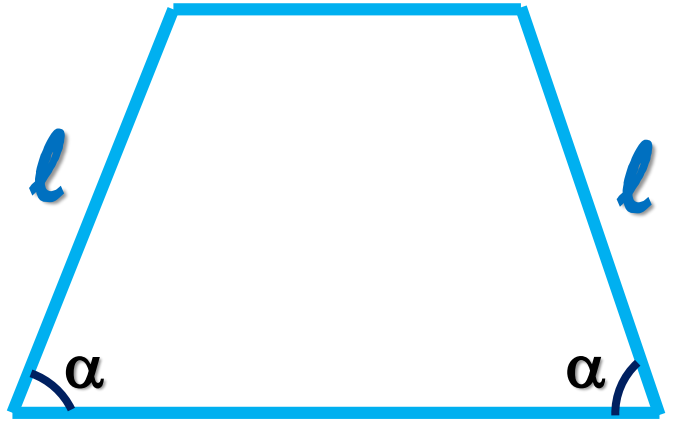
$\overline{BC} \parallel \overline{AD}$

$\overline{BC}$ y $\overline{AD}$: **BASES**

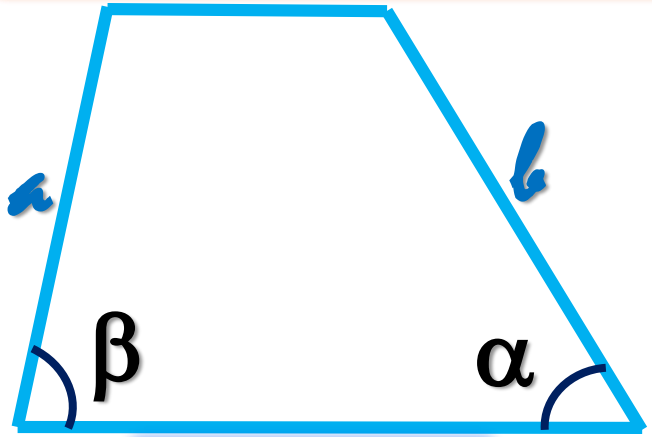
- $\overline{BH}$: **Altura**

Clasificación de trapecios

TRAPECIO ISÓSCELES



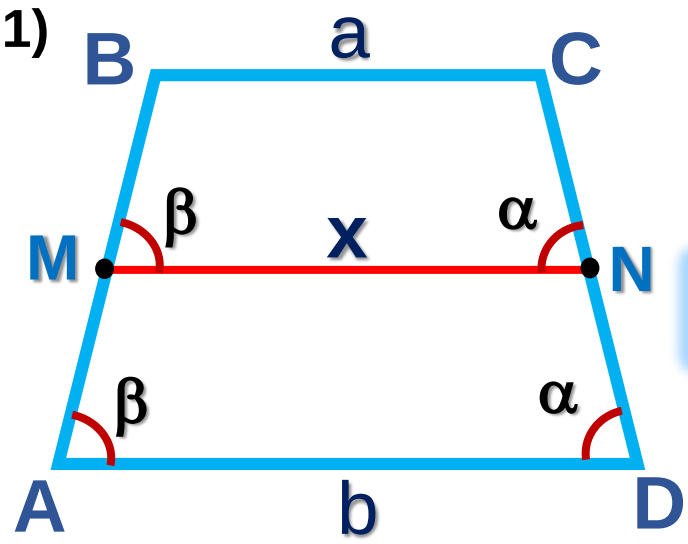
TRAPECIO ESCALENO



$\alpha \neq \beta$

Teoremas en el trapecio

1)



$\overline{MN}$: Base media

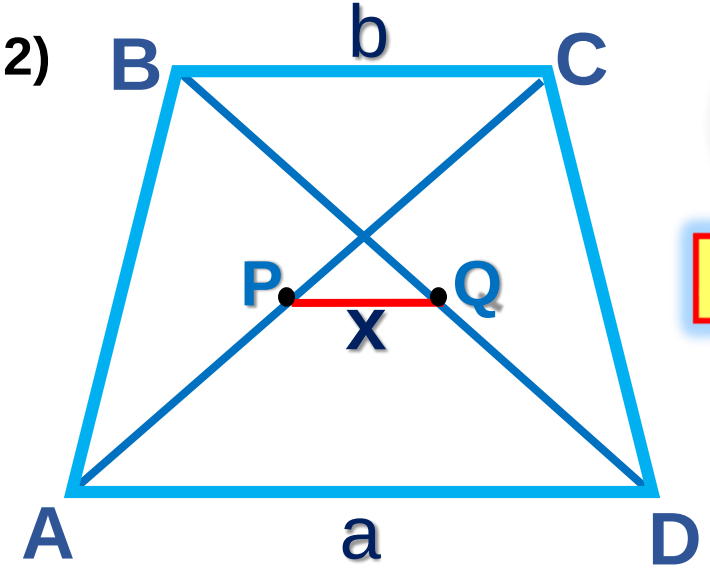
AM = BM

CN = DN

$\overline{AD} \,//\, \overline{BC} \,//\, \overline{MN}$

$$x = \frac{a+b}{2}$$

2)



AP = PC

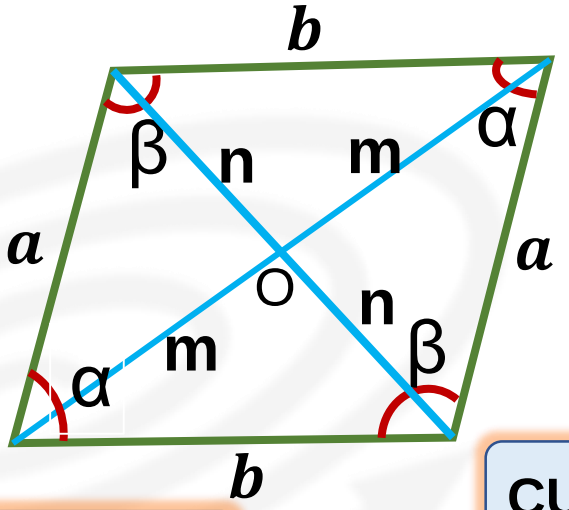
BQ = DQ

$\overline{AD} \,//\, \overline{BC} \,//\, \overline{PQ}$

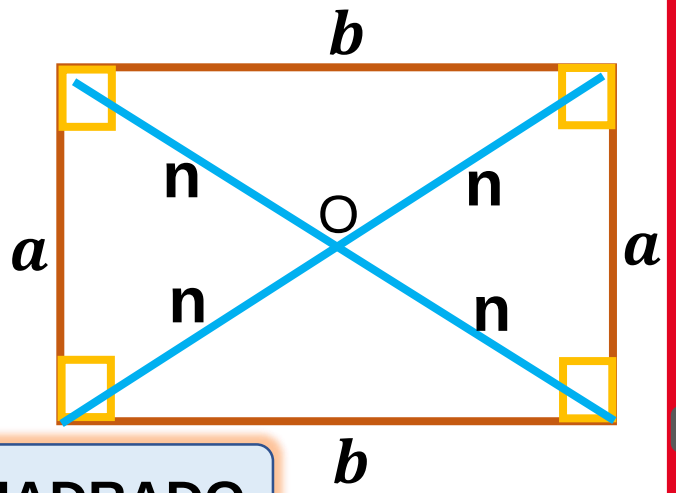
$$x = \frac{a-b}{2}$$

PARALELOGRAMO

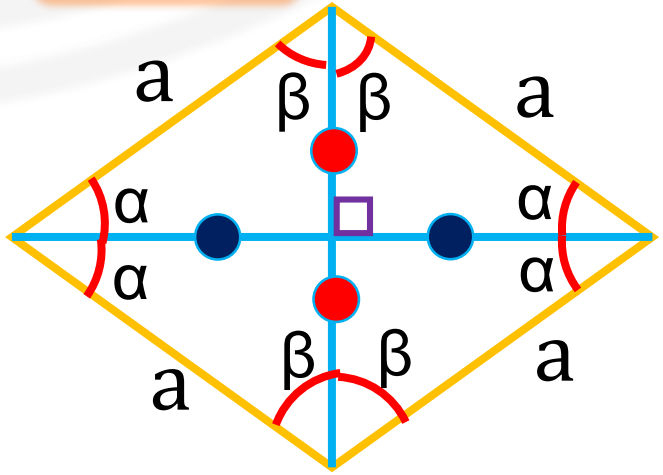
ROMBOIDE



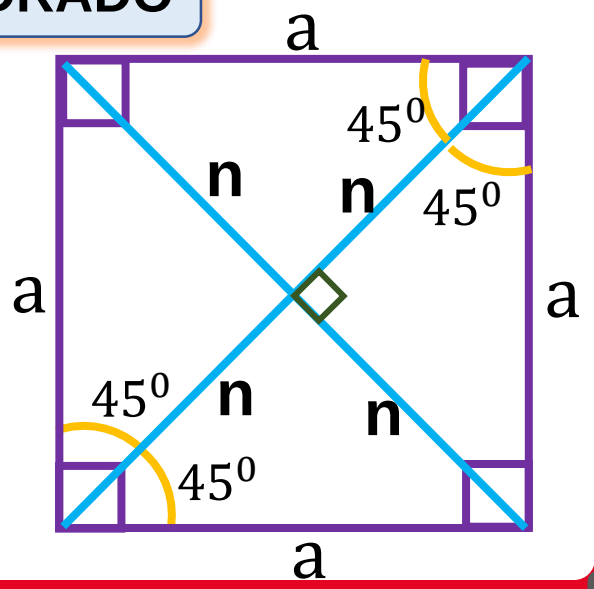
RECTÁNGULO



ROMBO



CUADRADO



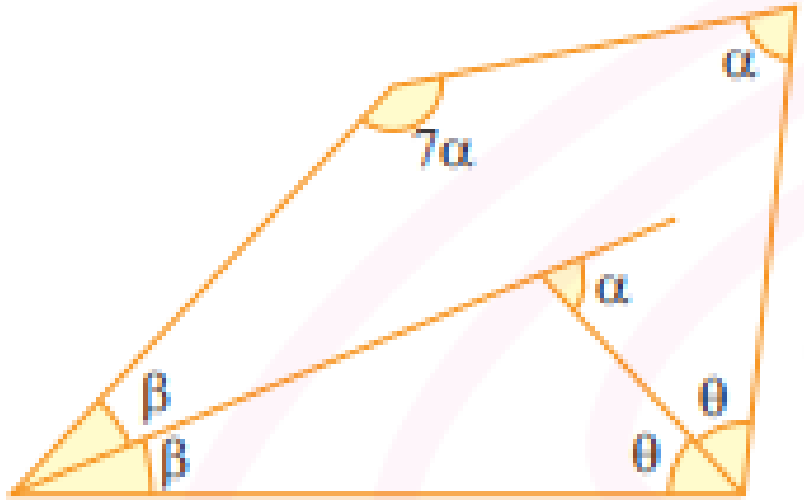
Resolución de Problemas

- Problema 01
- Problema 02
- Problema 03
- Problema 04
- Problema 05

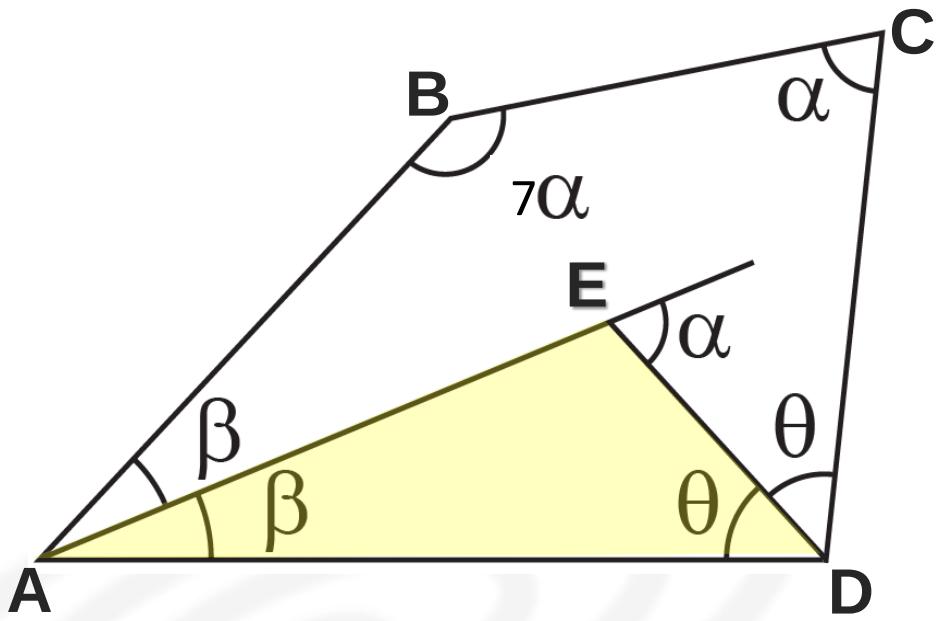
HELICO PRACTICE

Problema 01

En la figura, halle el valor de α.



Resolución



- Piden: α
- $\triangle$ AED : $\alpha = \theta + \beta$
- ABCD : $2\theta + 2\beta + 7\alpha + \alpha = 360°$

$$2\theta + 2\beta + 8\alpha = 360°$$

$$\theta + \beta + 4\alpha = 180°$$

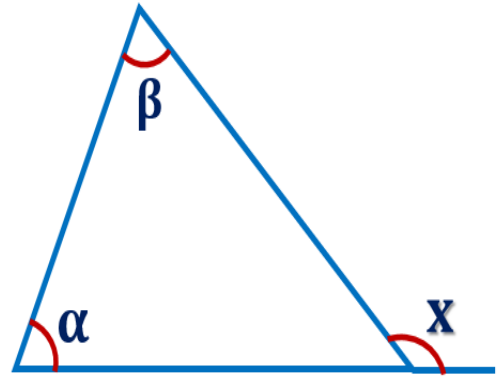
$$\alpha + 4\alpha = 180°$$

$$5\alpha = 180°$$

$$\alpha = 36°$$

Respuesta $\therefore \alpha = 36°$

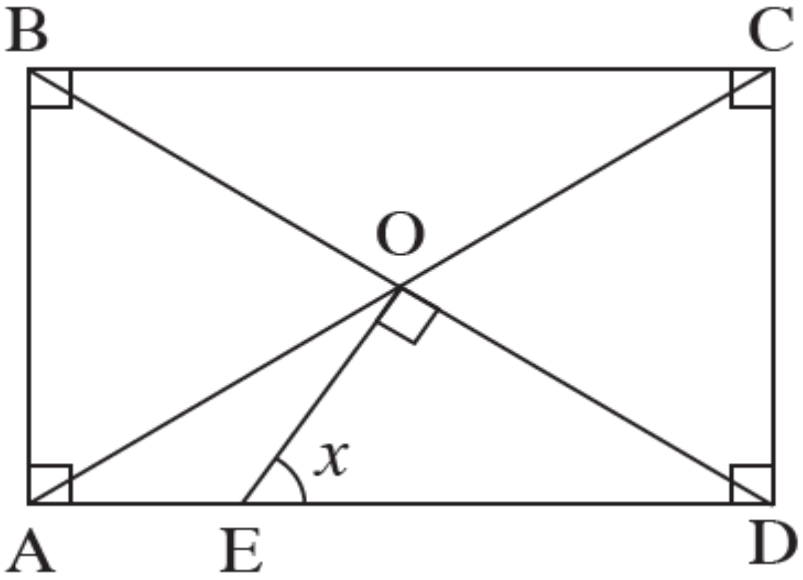
RECORDEMOS



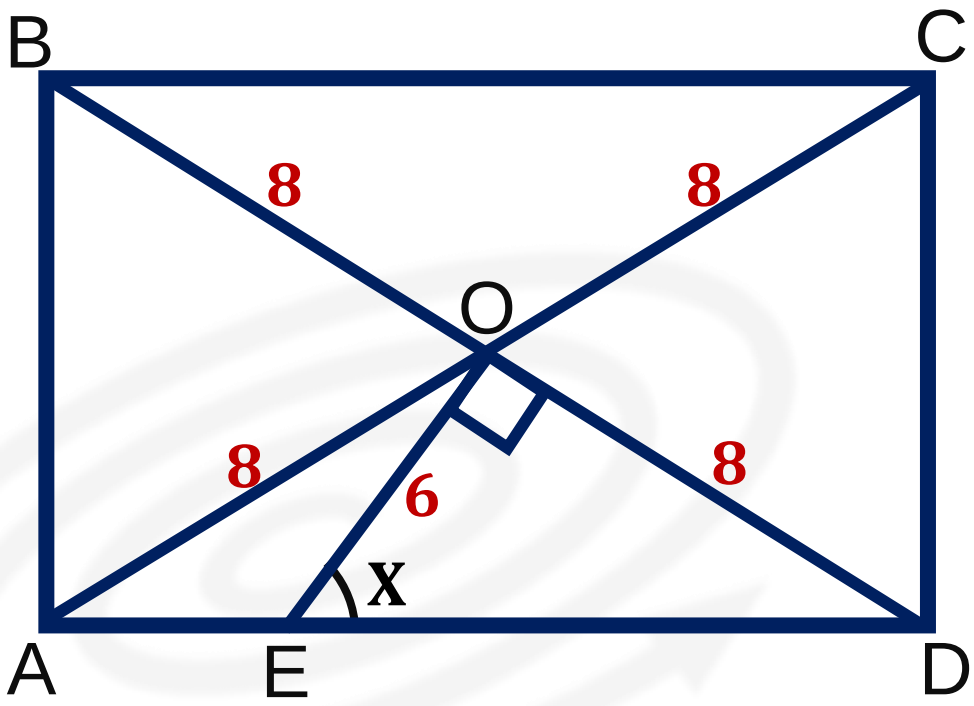
$$x = \alpha + \beta$$

Problema 02

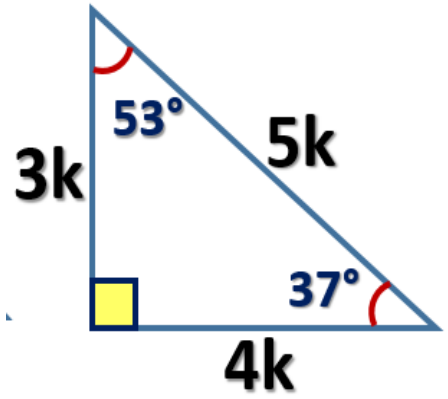
En la figura AC=16 y EO=6. Halle el valor de x.



Resolución



RECORDEMOS

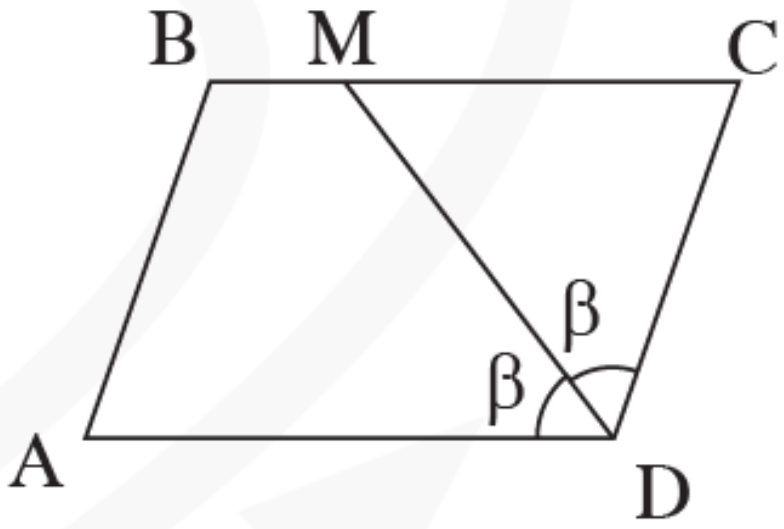


El triángulo EOD es triángulo notable ($37^0 y\ 53^0$).

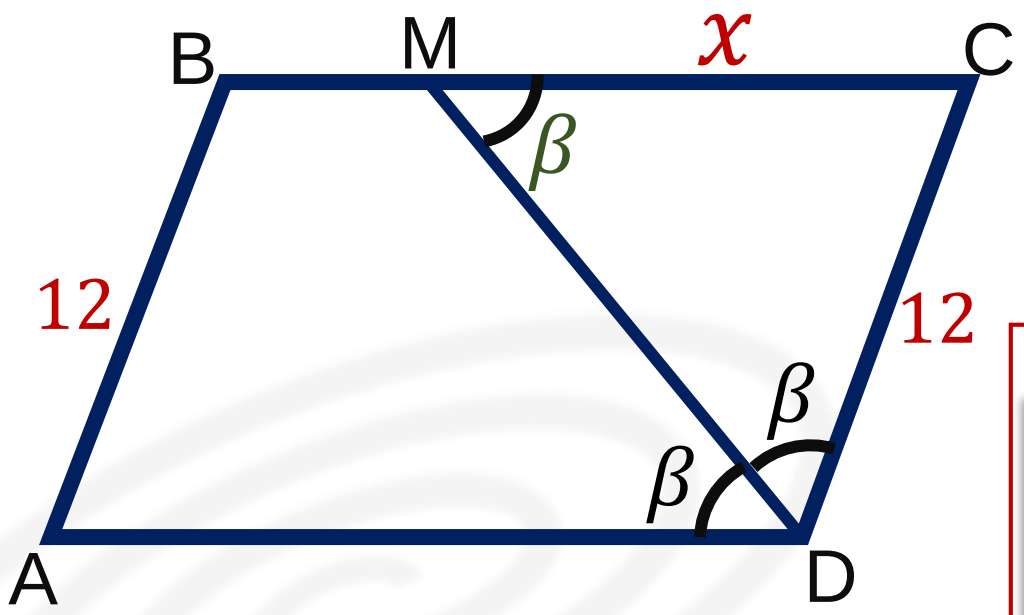
Respuesta $\therefore x = 53°$

Problema 03

ABCD es un paralelogramo y AB=12. Calcule MC.

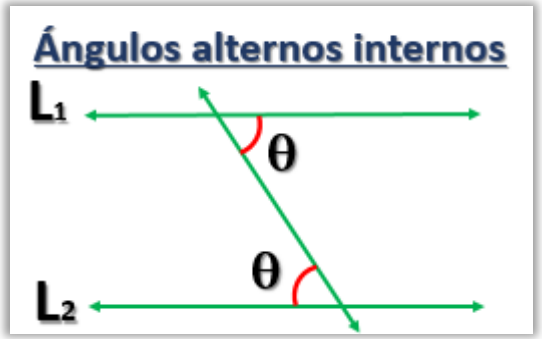


Resolución



El triángulo MCD es isósceles.

RECORDEMOS



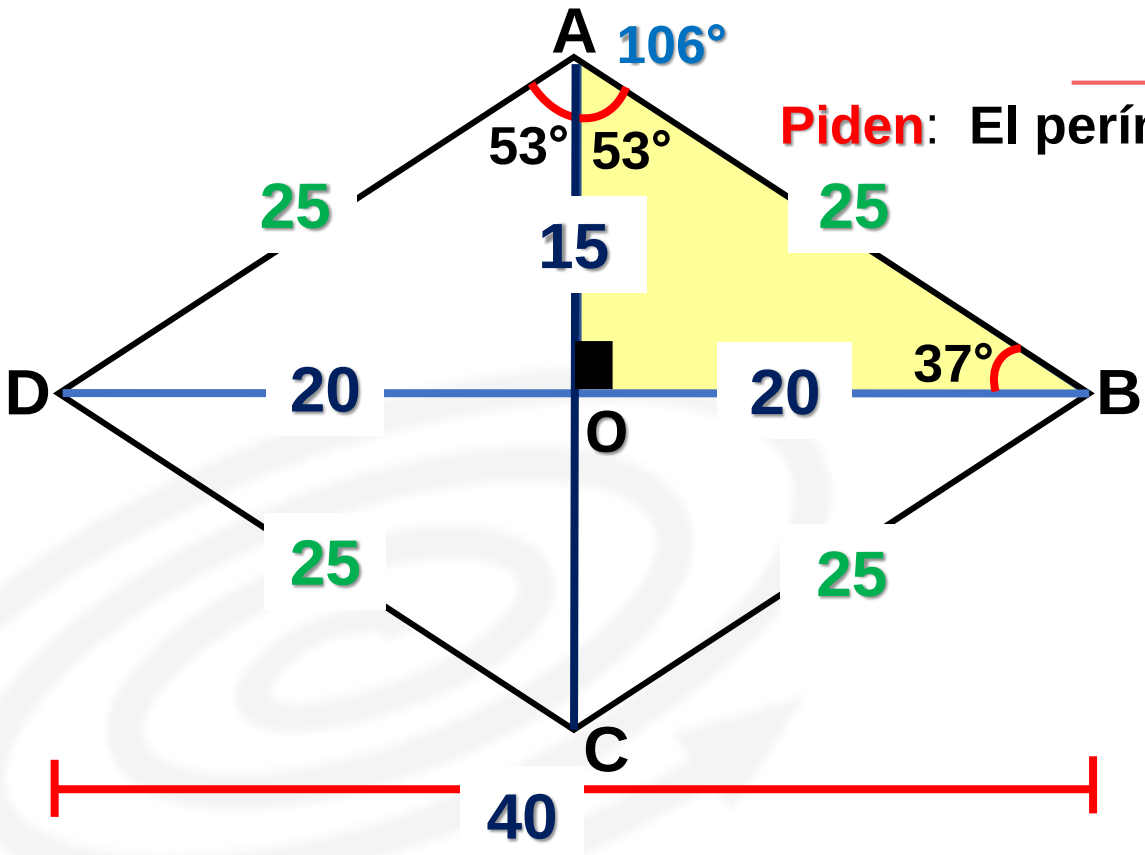
Respuesta ∴ x = 12

Problema 04

Se quiere armar un cometa de forma rombal ABCD, AB forma 106° con AD , BD= 40 cm. Calcule el perímetro de esta cometa.

Resolución

Piden: El perímetro del rombo



BO = OD = 20

m $\sphericalangle ABO$ = m $\sphericalangle OBC$ = 53°

- Si $\triangle$ BOC Notable de 37° - 53°

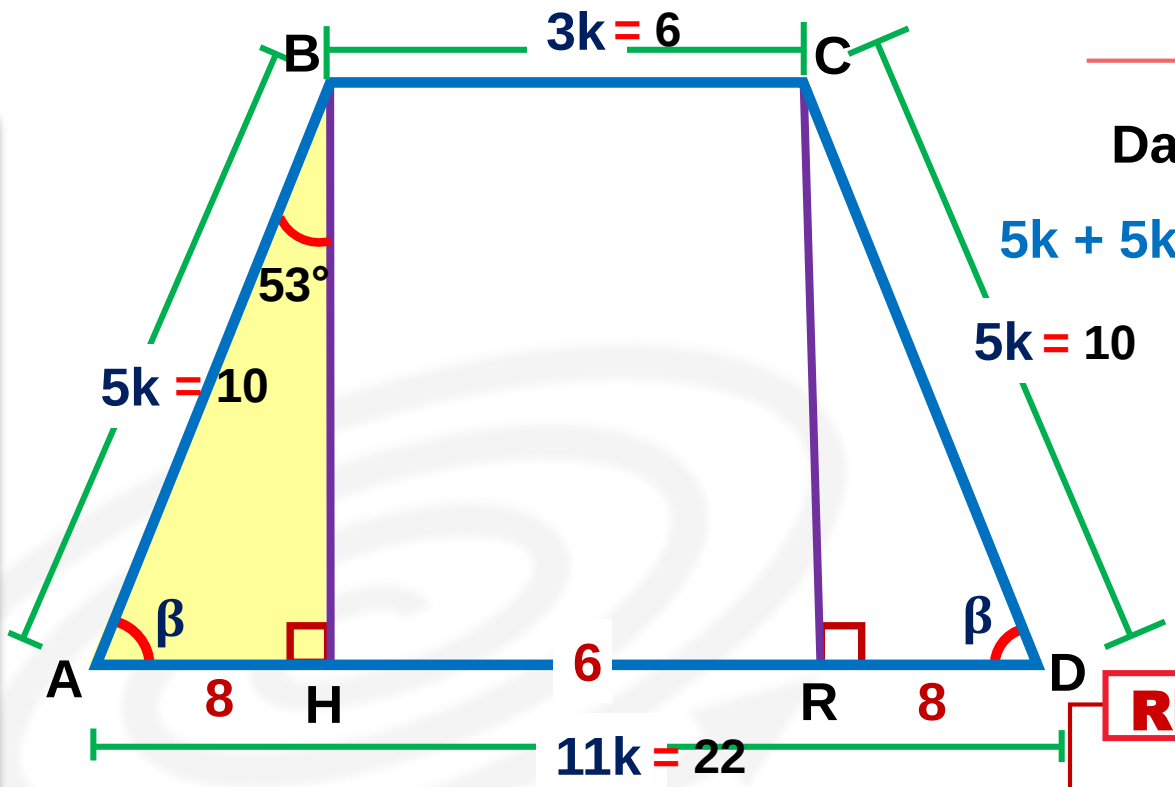
AB = 25

2p (ABCD) = 25 + 25 + 25 + 25 = 100

Respuesta 2p (ABCD) = 100cm

Problema 05

Se tiene una mesa cuyo tablero tiene forma trapecial isósceles tal que la base menor, base mayor y el lado lateral están en relación 3, 11 y 5 respectivamente, si el perímetro del tablero es 48 cm. Calcule la longitud de la altura del trapecio isósceles..



Resolución

Dato: $2p_{\square} = 48$

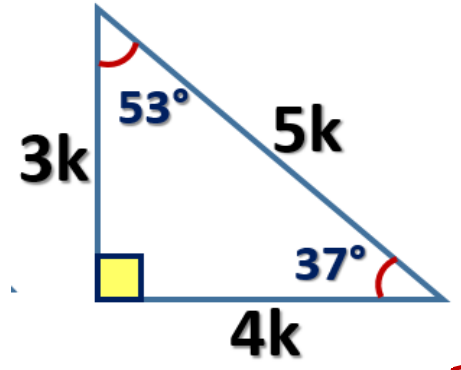
$5k + 5k + 11k + 3k = 48$

$24k = 48$

$k = 2$

- Piden BH
- Se trazan las alturas $\overline{BH}$ y $\overline{CR}$
- HBCR (Rectángulo) BC = HR = 6
- ADEMÁS AH = RD = 8
- $\triangle$ AHB (Notable 37° - 53°)

RECORDEMOS



Respuesta ∴ BH = 6

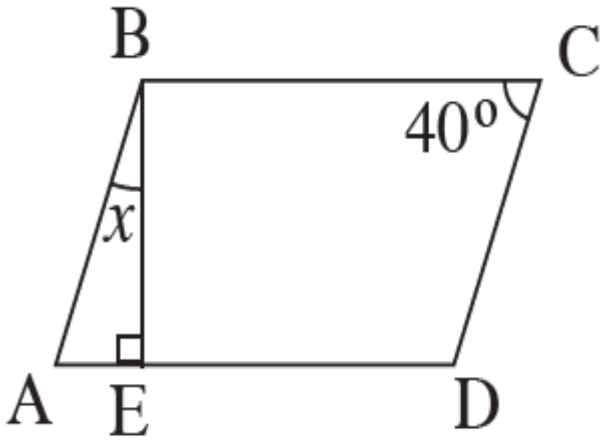
Problemas Propuestos

- Problema 06
- Problema 07
- Problema 08
- Problema 09
- Problema 10

HELICO
WORKSHOP

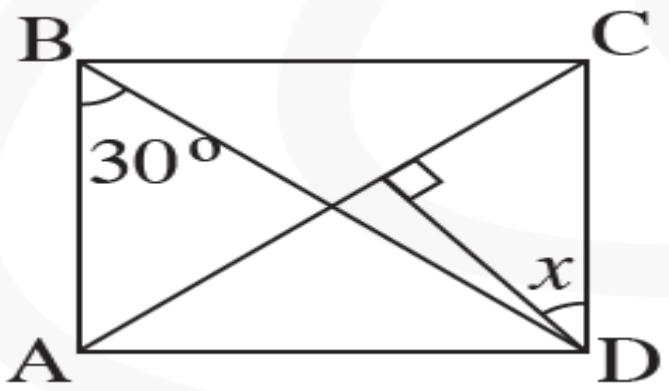
Problema 06

En la figura, ABCD es un romboide. Halle el valor de x.



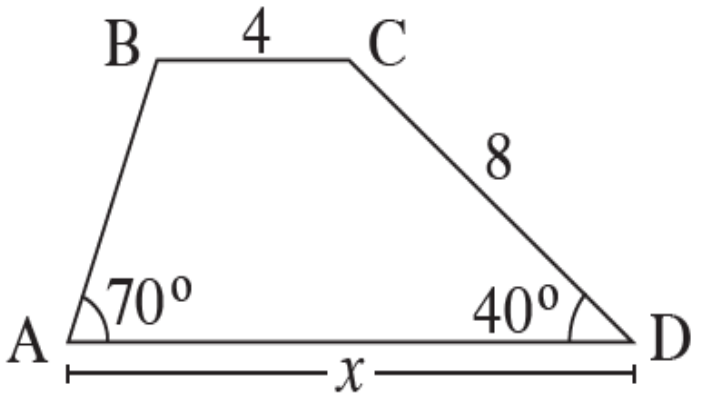
Problema 07

En la figura, ABCD es un rectángulo. Halle el valor de x



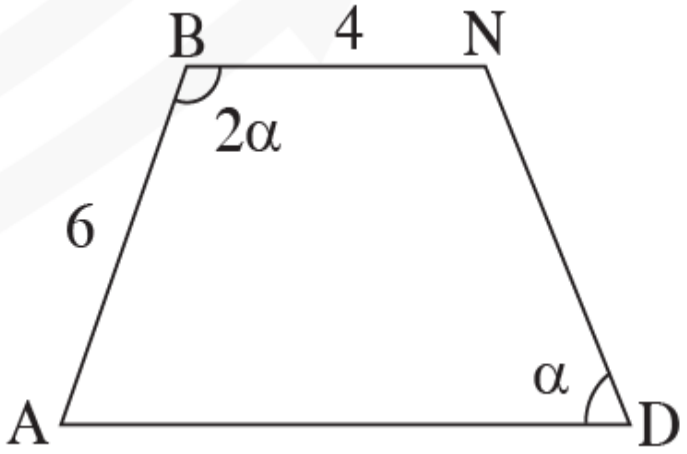
Problema 08

En la figura, $\overline{BC} \parallel \overline{AD}$. Halle el valor de x.



Problema 09

El profesor Julio se compra un terreno de forma trapecial isósceles como muestra el gráfico. Si $\overline{BC} \,//\, \overline{AD}$, calcule el perímetro de dicho terreno.



Problema 10

Se tiene 2 aretes de forma rombal cuyos diagonales son 8 cm y 6 cm . Calcule la suma de los perímetros de ambos aretes.