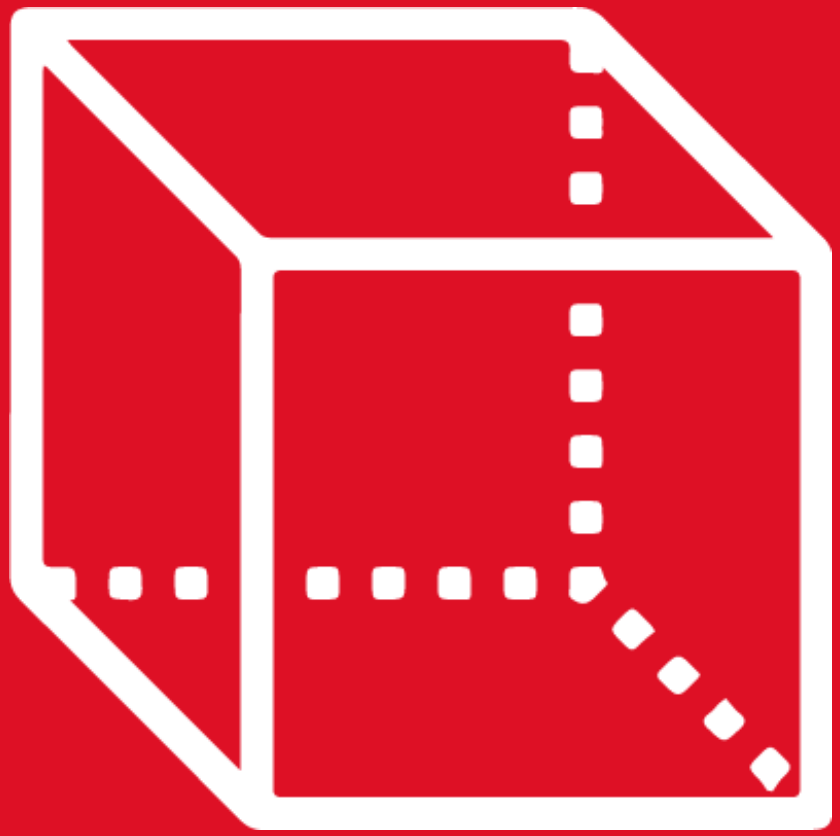
GEOMETRÍA

Capítulo 12

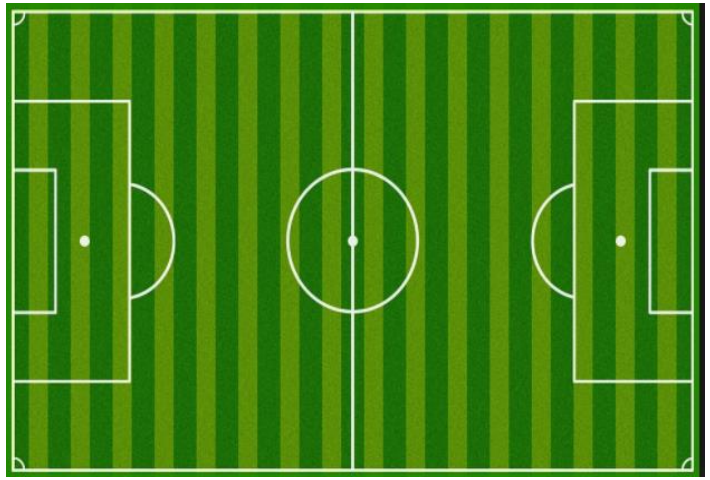


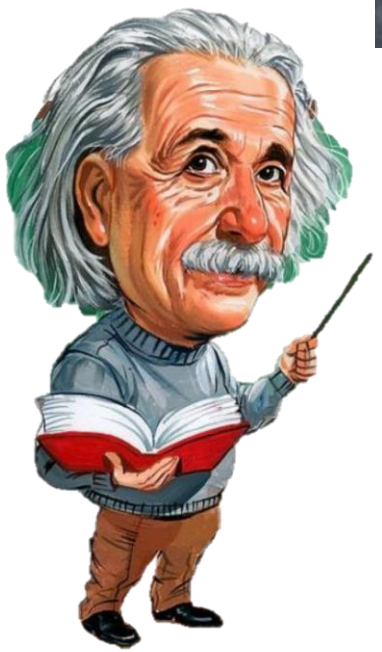
3st
SECONDARY

Paralelogramos

SACO OLIVEROS

MOTIVATING | STRATEGY

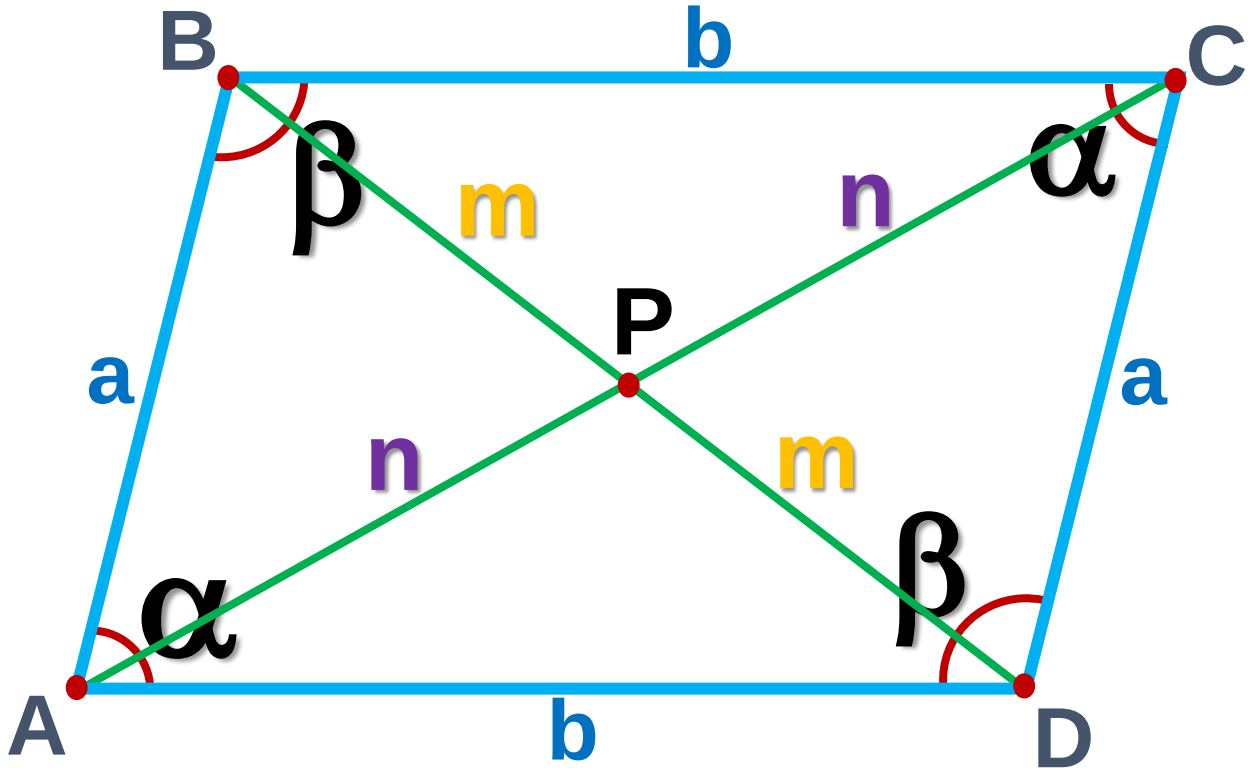




PARALELOGRAMO

Definición : Es aquel cuadrilátero que tiene sus lados opuestos paralelos y congruentes.

▱ ABCD: PARALELOGRAMO



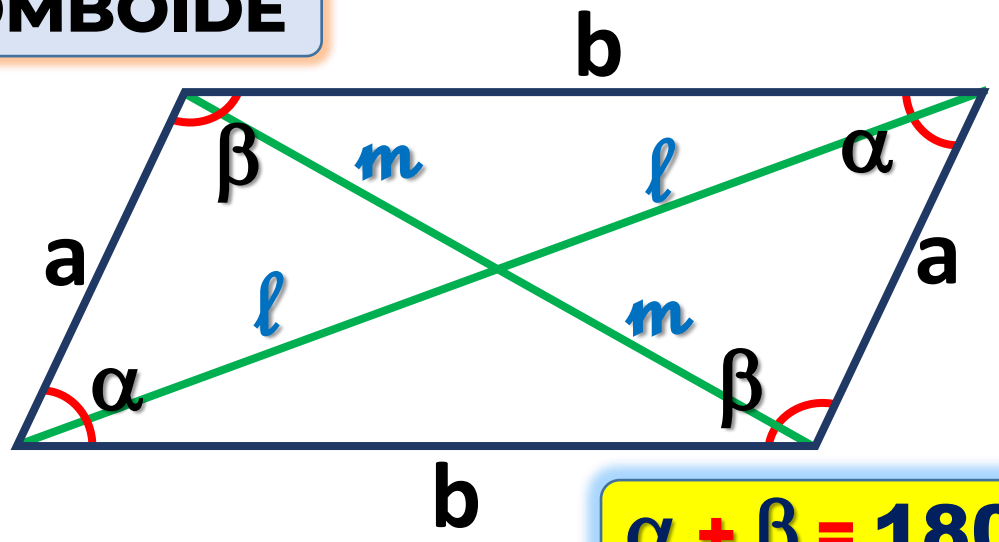
- $\overline{AB} \parallel \overline{CD} \wedge \overline{BC} \parallel \overline{AD}$
- $AB = CD \wedge BC = AD$

$$\alpha + \beta = 180°$$

- $AP = PC \wedge BP = PD$

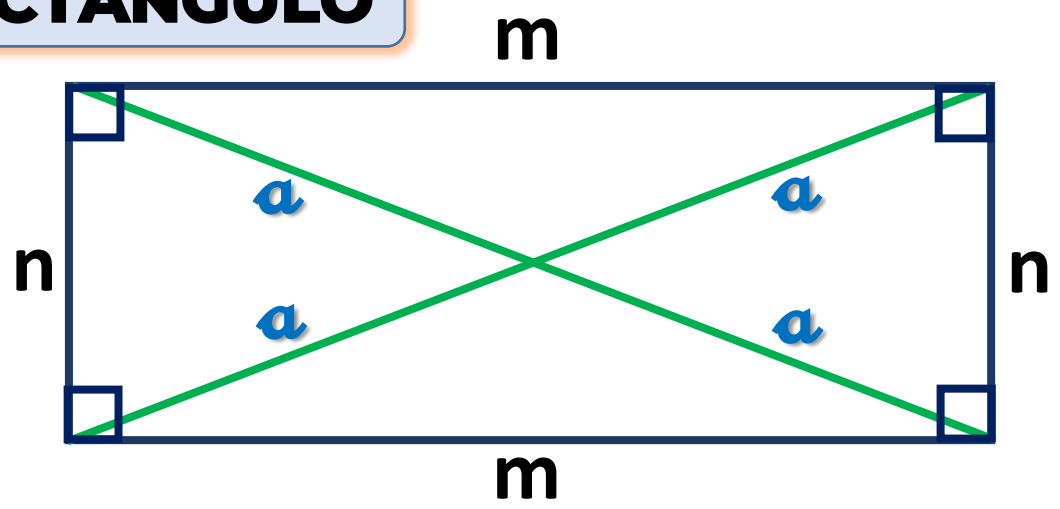
CLASIFICACIÓN DE LOS PARALELOGRAMOS

ROMBOIDE

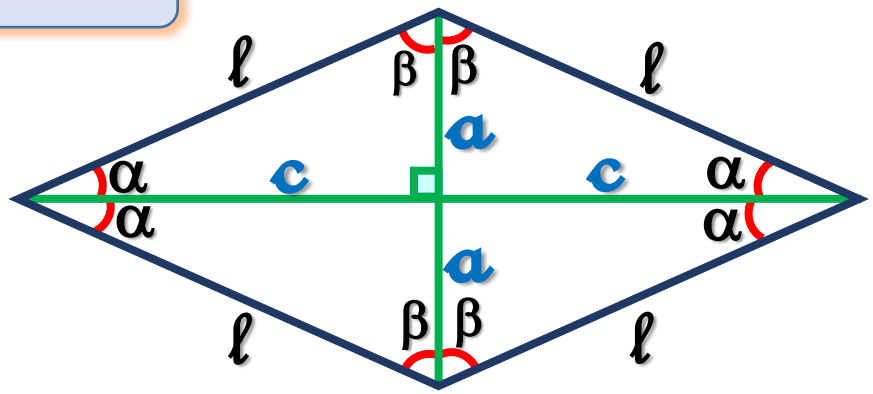


$\alpha + \beta = 180°$

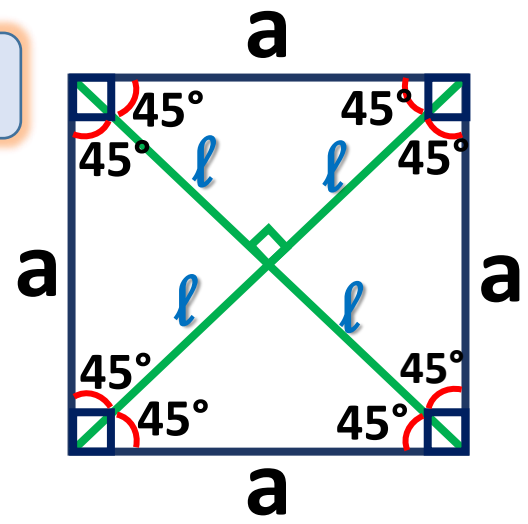
RECTÁNGULO



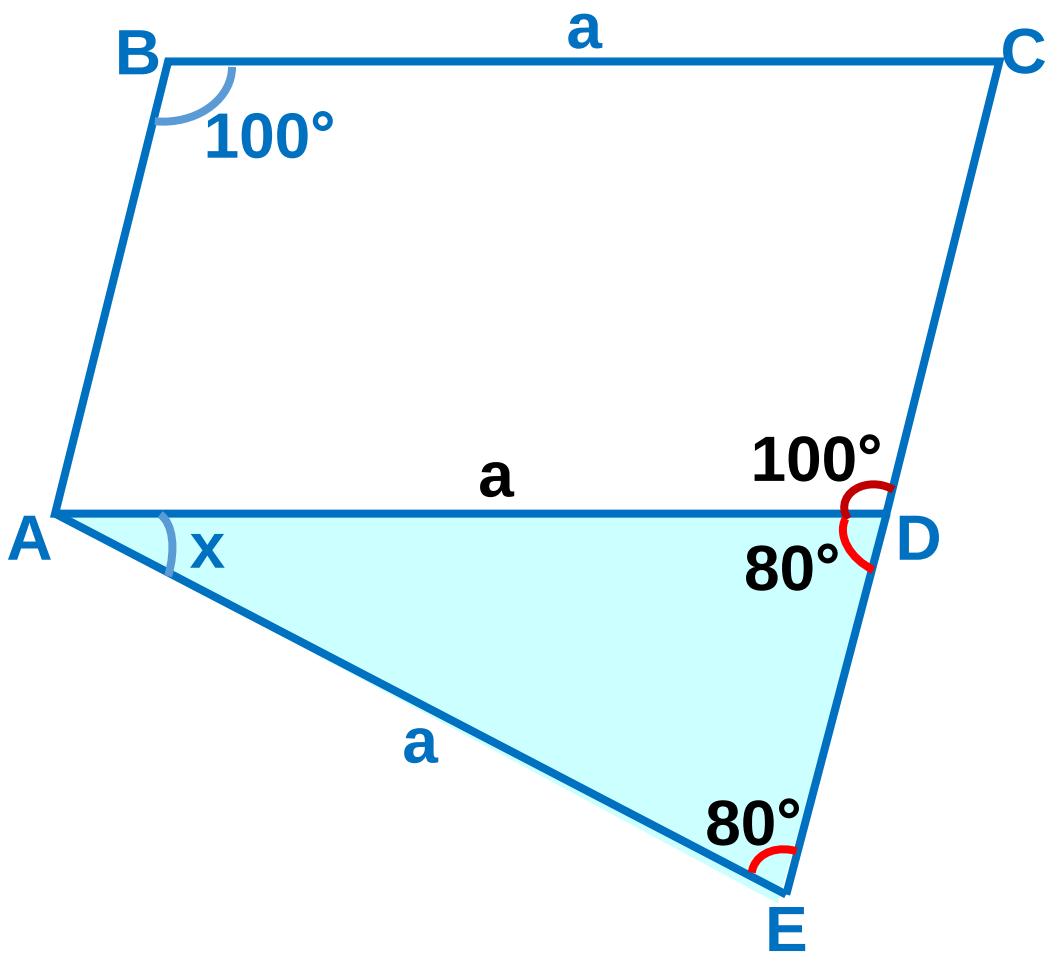
ROMBO

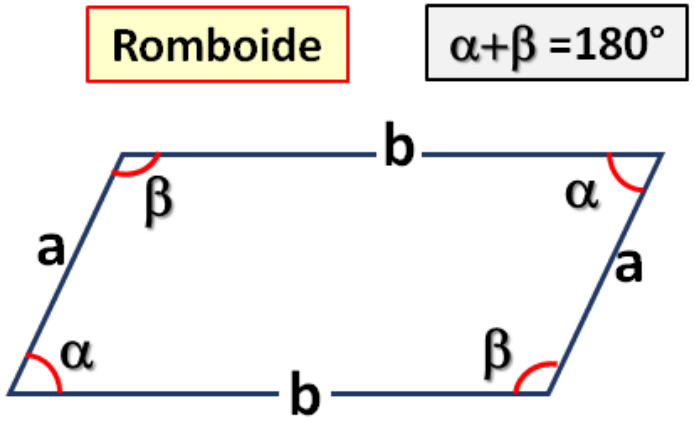


CUADRADO



1. Halle el valor de x, si ABCD es un romboide y BC = AE.





- △ ADE : Isósceles

$$x + 80° + 80° = 180°$$

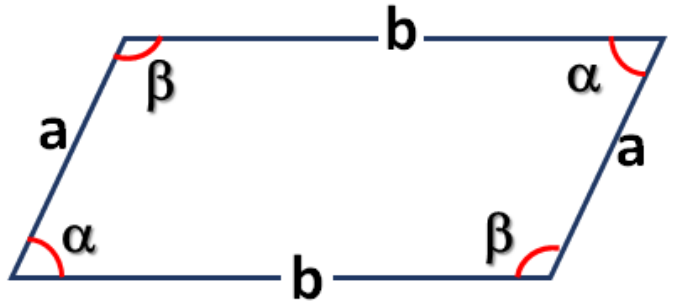
$$x + 160° = 180°$$

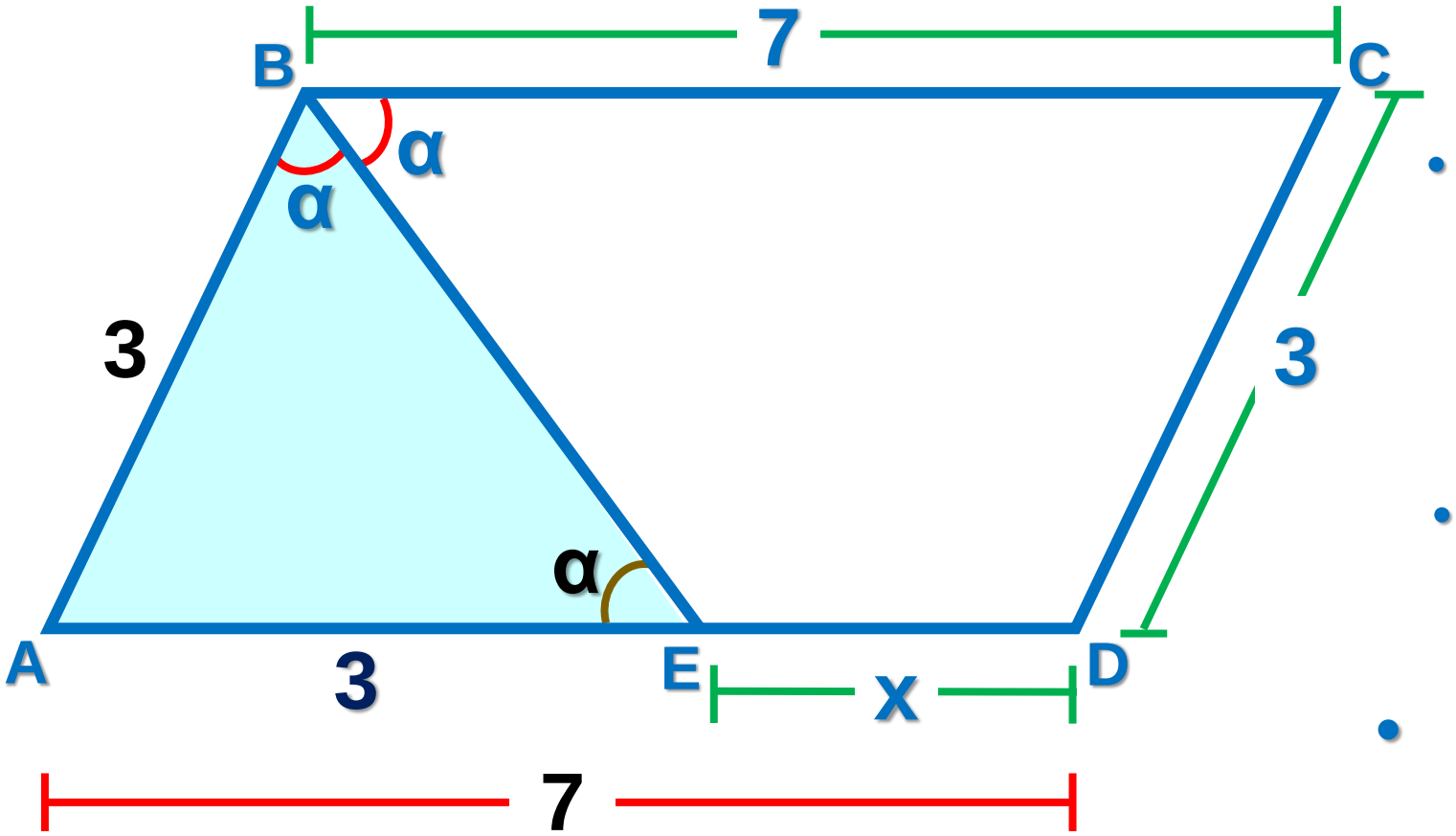
$$\boxed{x = 20°}$$

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

Romboide

$\alpha+\beta=180°$





- ABCD : Romboide

  AB = CD = 3

  BC = AD = 7

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

- ABE : Isósceles

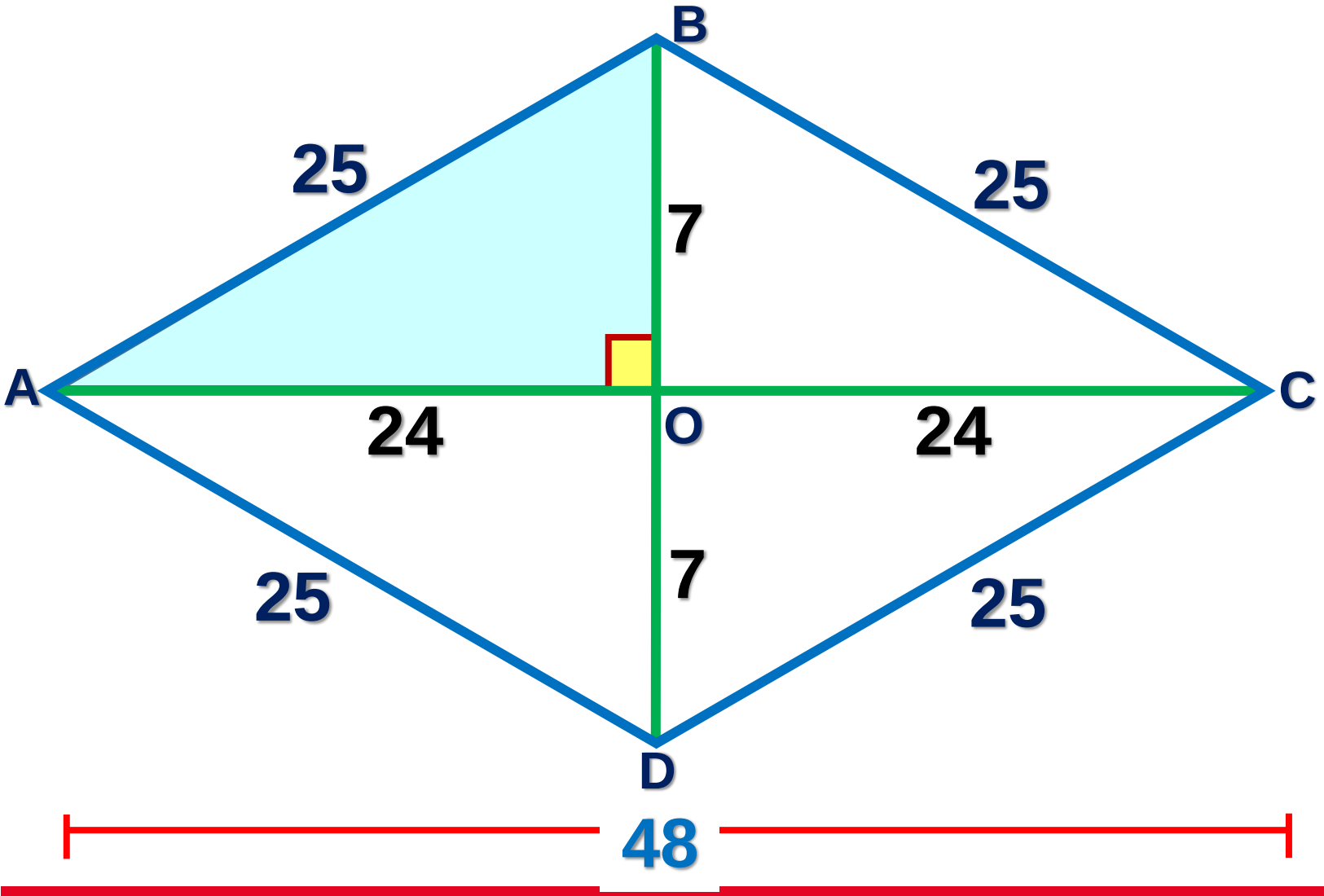
  AB = AE = 3

- En el $\overline{AD}$.

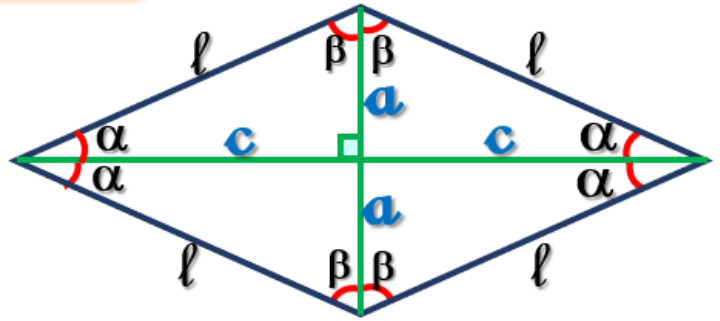
  $3 + x = 7$

$x = 4$

3. Parte de una estructura de un puente está determinada por un rombo de perímetro 100 cm, si la longitud de su diagonal mayor es de 48 cm Determine la longitud de su diagonal menor.



ROMBO



- ▱ ABCD : Rombo
- ◺ AOB : Por teorema de Pitágoras

$25^2 = 24^2 + BO^2$

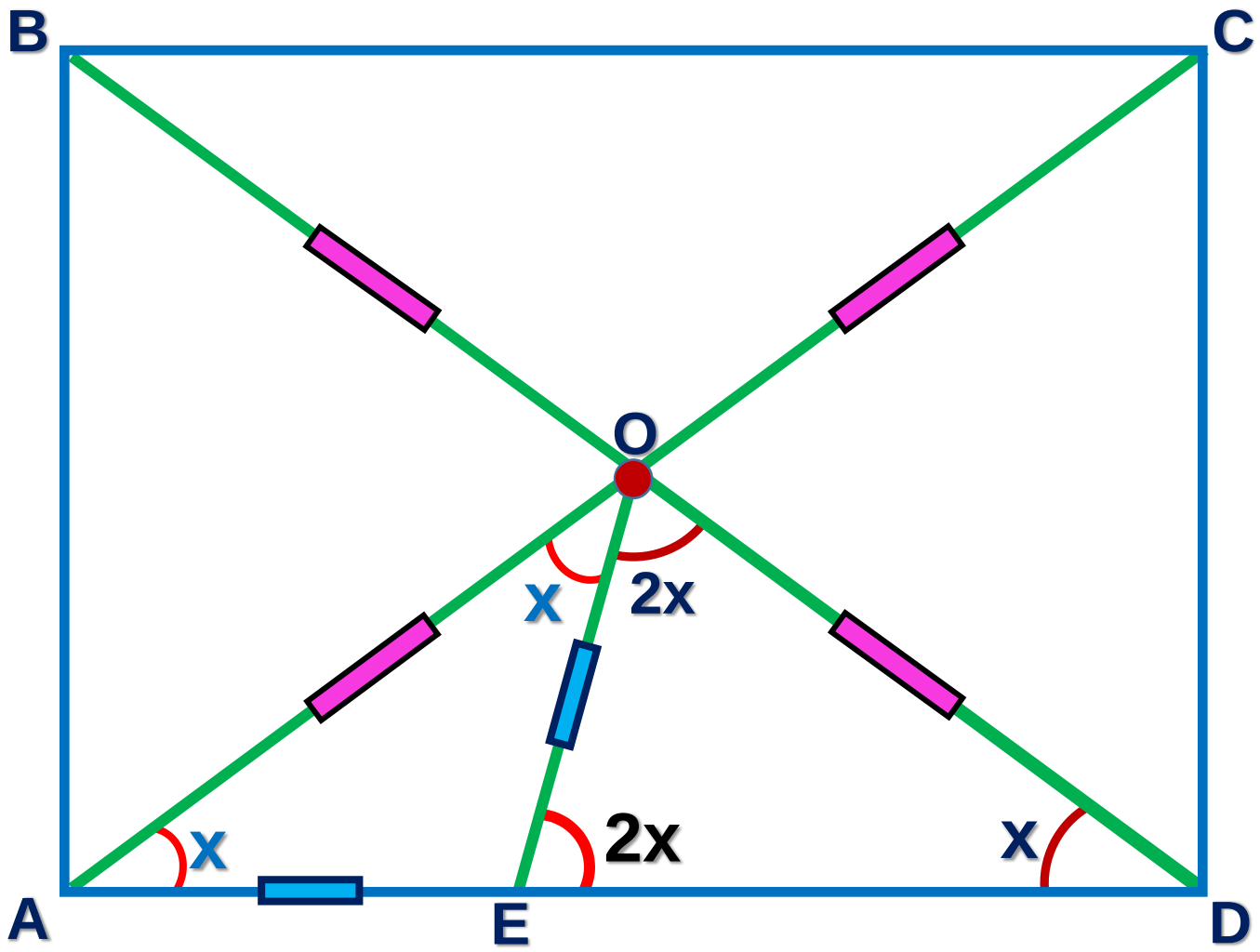
$49 = BO^2$

$BO = 7$

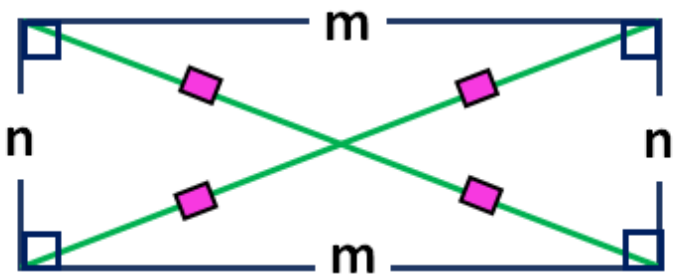
$BO = OD = 7$

➡ **BD = 14cm**

4. ABCD es un rectángulo de centro O. Si AE = EO, calcule x.



Rectángulo



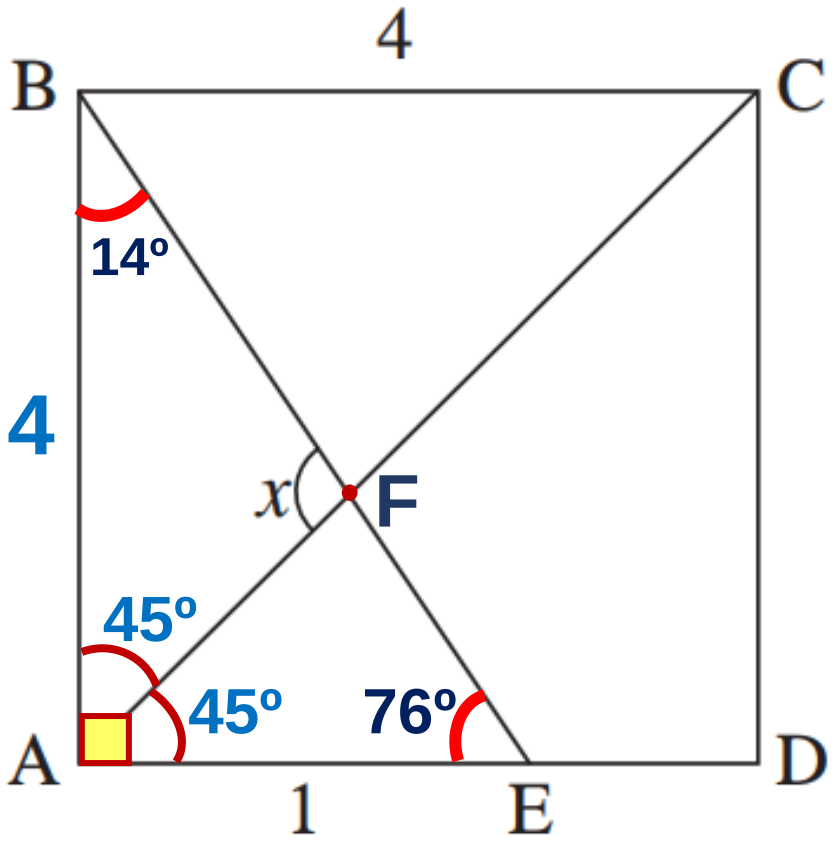
- △ AOD : ISÓSCELES
- △ AOE : ISÓSCELES
- △ EOD :

$2x + 2x + x = 180°$

$5x = 180°$

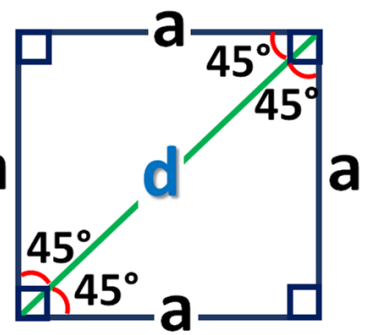
$x = 36°$

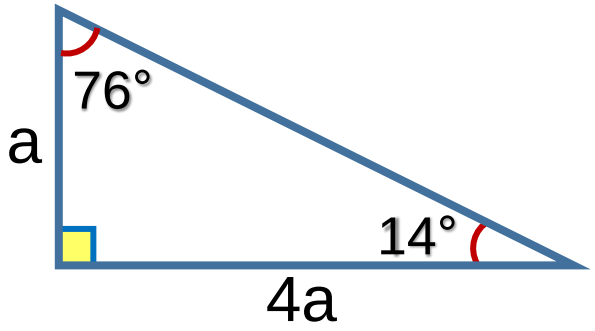
5. Se muestra un cuadrado ABCD. Halle el valor de x.



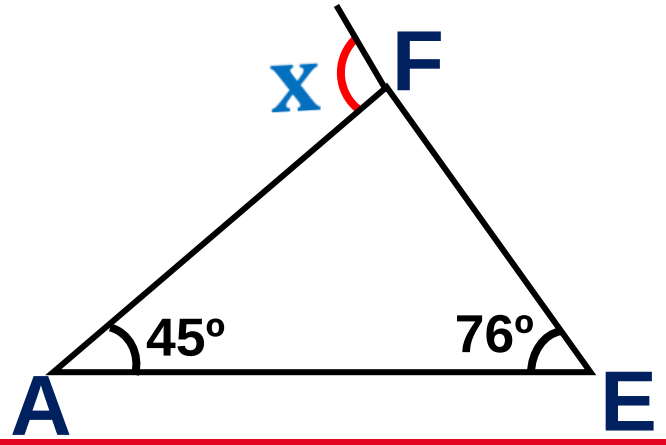
Cuadrado

$d = a\sqrt{2}$





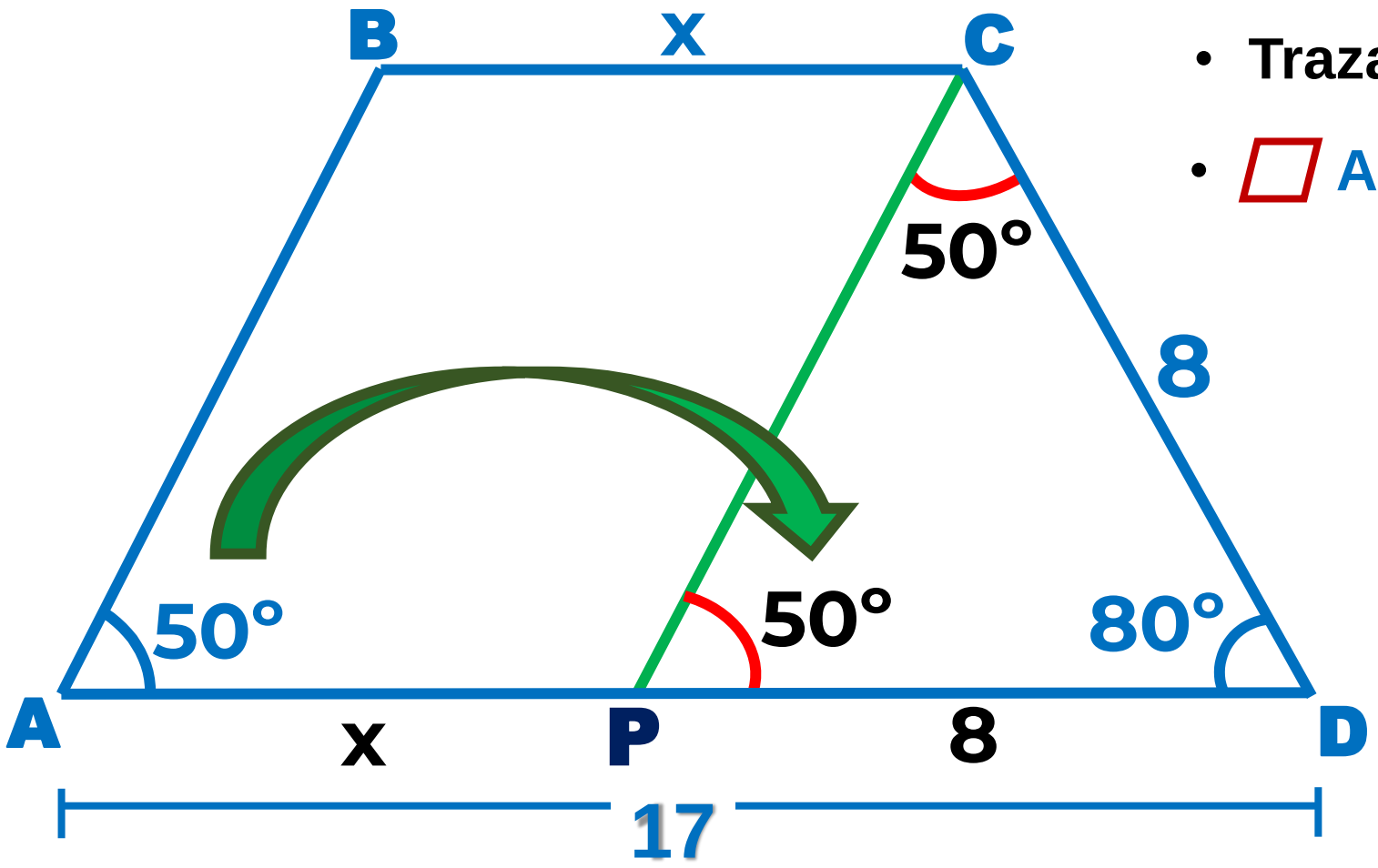
- $\triangle ABE$: **Notable de 14° y 76°**
- $\triangle AFE$



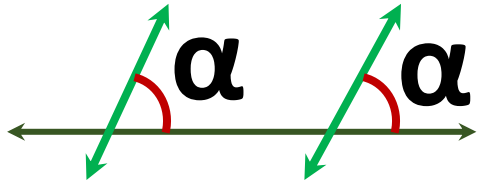
x = 45° + 76°

x = 121°

6. En la figura, $\overline{BC} \,//\, \overline{AD}$. Calcule BC.



- Trazamos $\overline{CP} \parallel \overline{AB}$
- $\square$ ABCP : PARALELOGRAMO

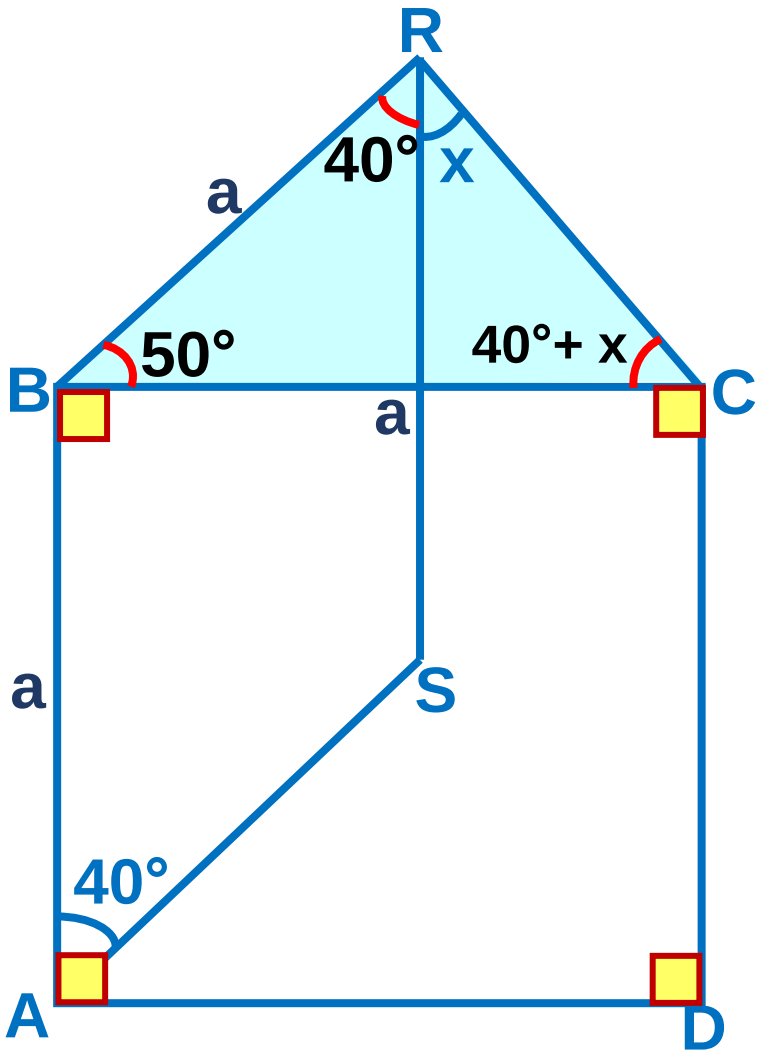


- $\triangle$PCD : ISÓSCELES

$x + 8 = 17$

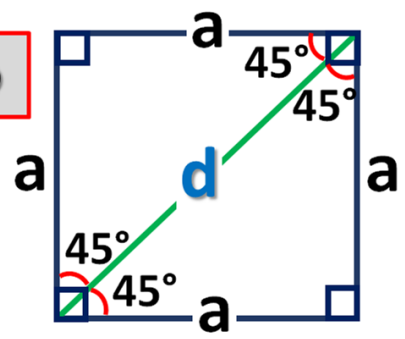
$x = 9$

7. Un soldador refuerza una estructura metálica colocando una varilla, si ABCD es un cuadrado y ABRS es un rombo. Halle el valor de x.

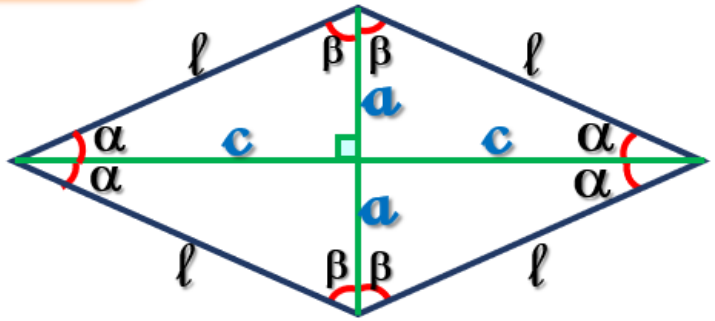


Cuadrado

$d = a\sqrt{2}$



ROMBO



- $\triangle$ **BRC : ISÓSCELES**

$$50° + 40° + x + 40° + x = 180°$$

$$130° + 2x = 180°$$

$$2x = 50°$$

$$x = 25°$$

X = 25°