



GEOMETRÍA

Capítulo 13

1st
SECONDARY

Trapezio

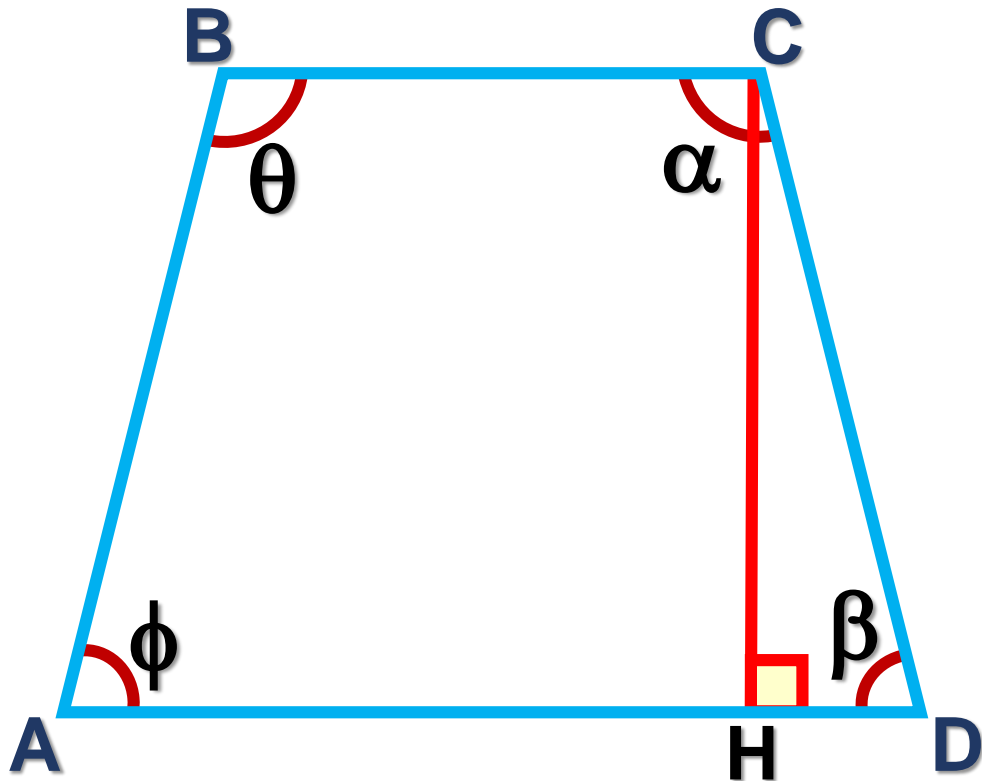


 **SACO OLIVEROS**





Definición: Es el cuadrilátero que tiene solo un par de lados paralelos.



$$\theta + \phi = 180^\circ$$

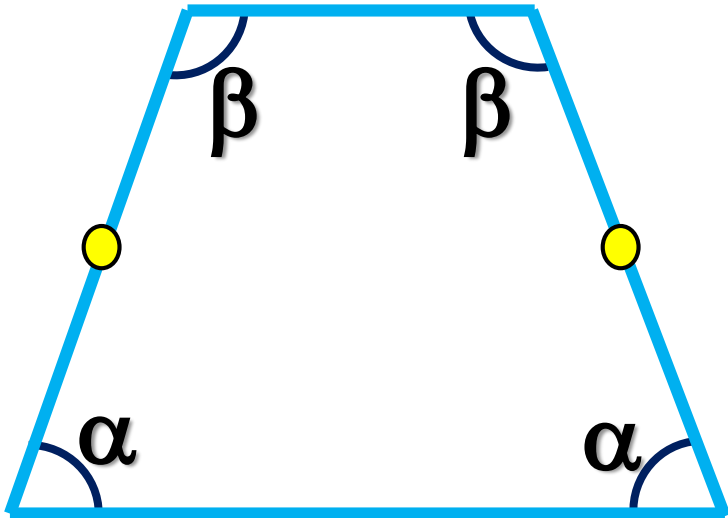
$$\alpha + \beta = 180^\circ$$

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

- **Bases:** Son los lados paralelos del trapecio (\overline{AD} y \overline{BC})
- **Lados laterales:** Son los lados no paralelos (\overline{AB} y \overline{CD}).
- **Altura:** Es el segmento perpendicular a las bases del trapecio (\overline{BH}).

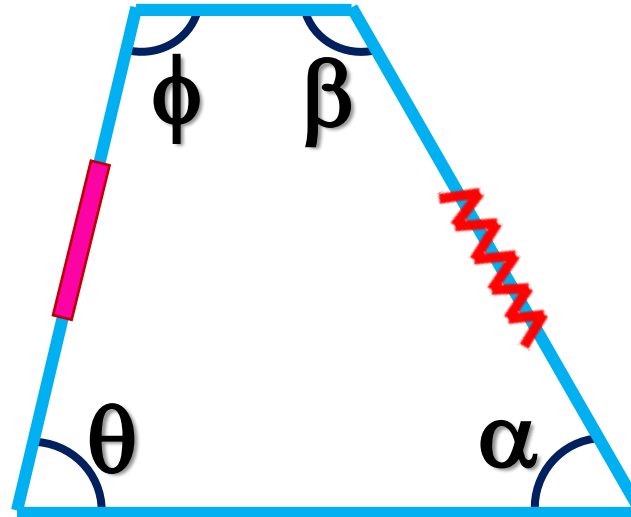


TRAPECIO ISÓSCELES

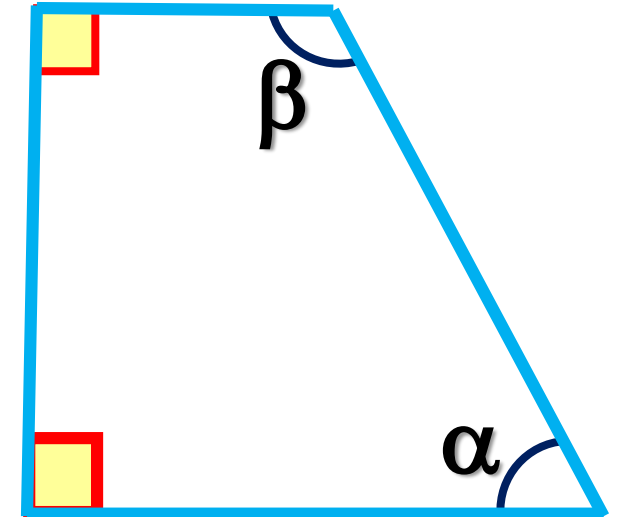


$$\alpha + \beta = 180^\circ$$

TRAPECIO ESCALENO

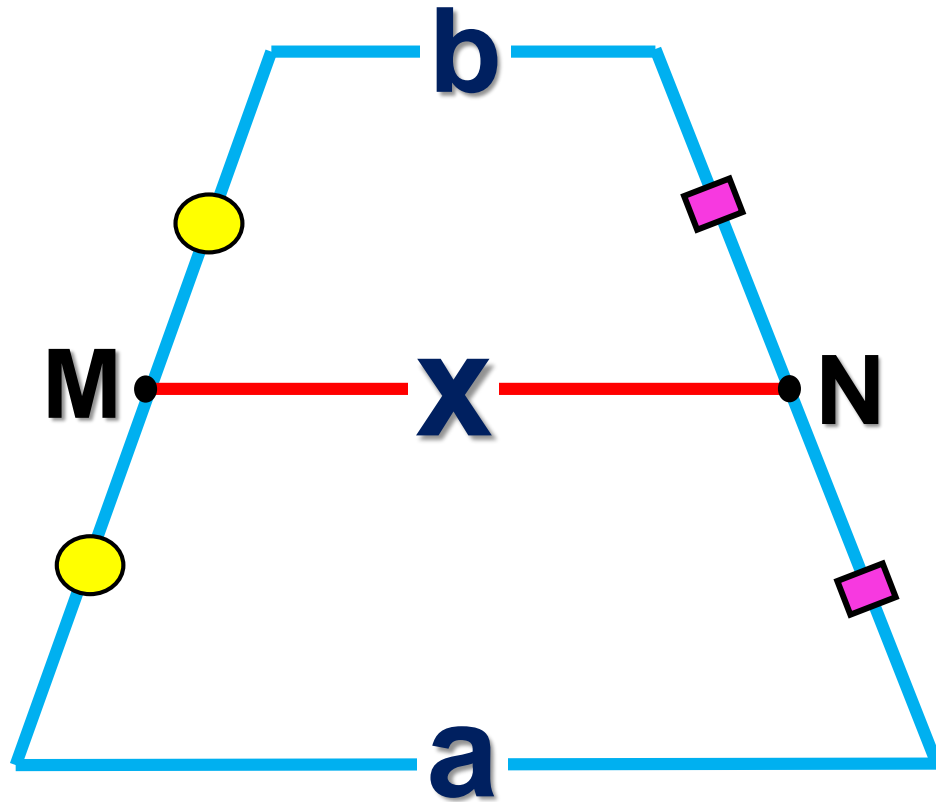


$$\theta + \phi = 180^\circ$$



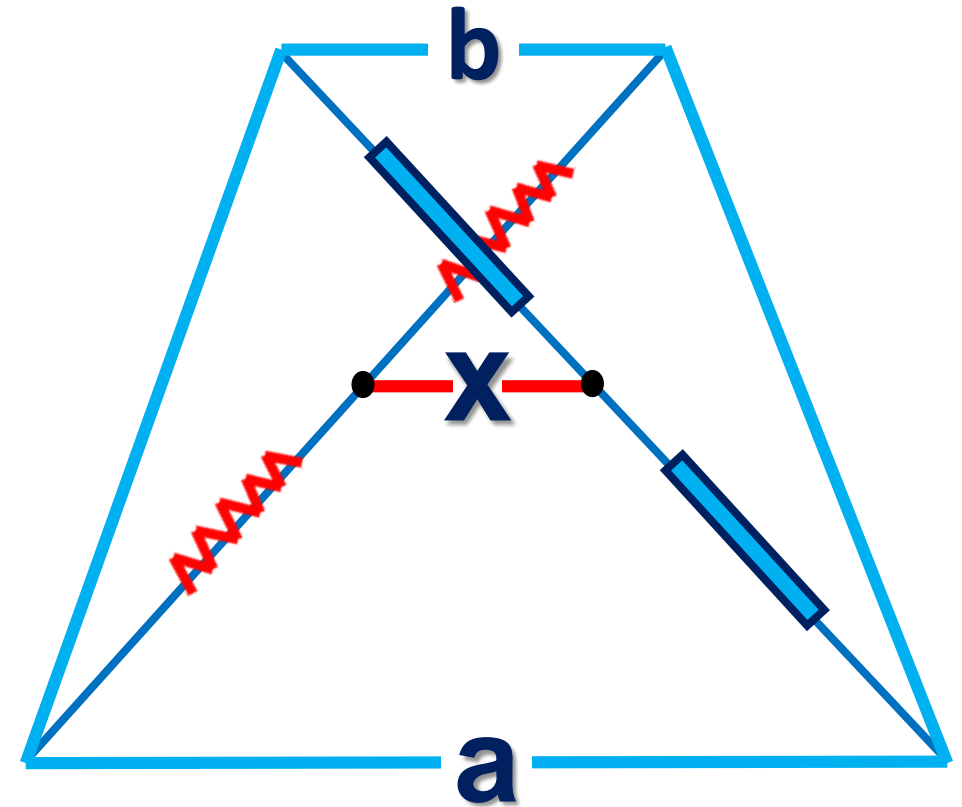
T. Rectángulo

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



MN : Base media

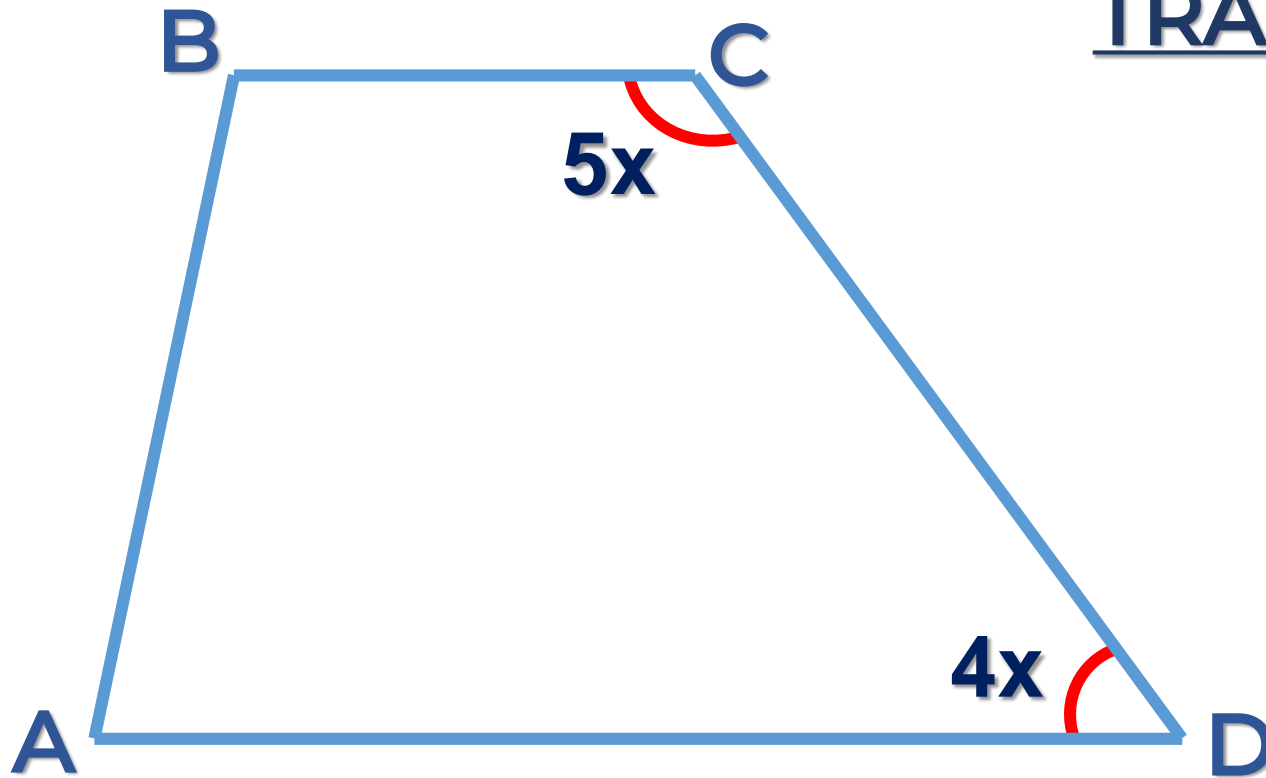
$$x = \frac{a+b}{2}$$



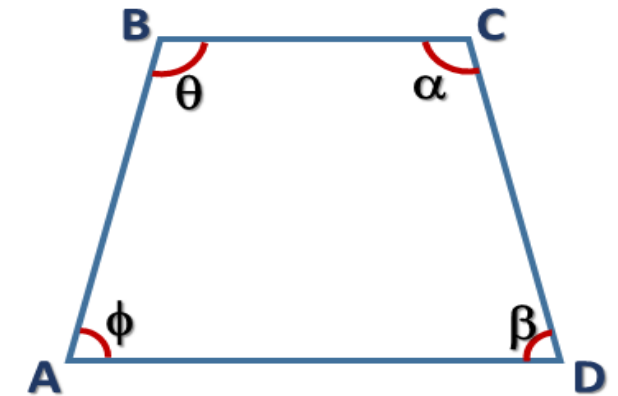
$$x = \frac{a-b}{2}$$



1. En el trapecio ABCD ($\overline{BC} \parallel \overline{AD}$), halle el valor de x.

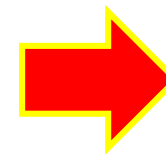


TRAPECIO



$$\theta + \phi = 180^\circ$$

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

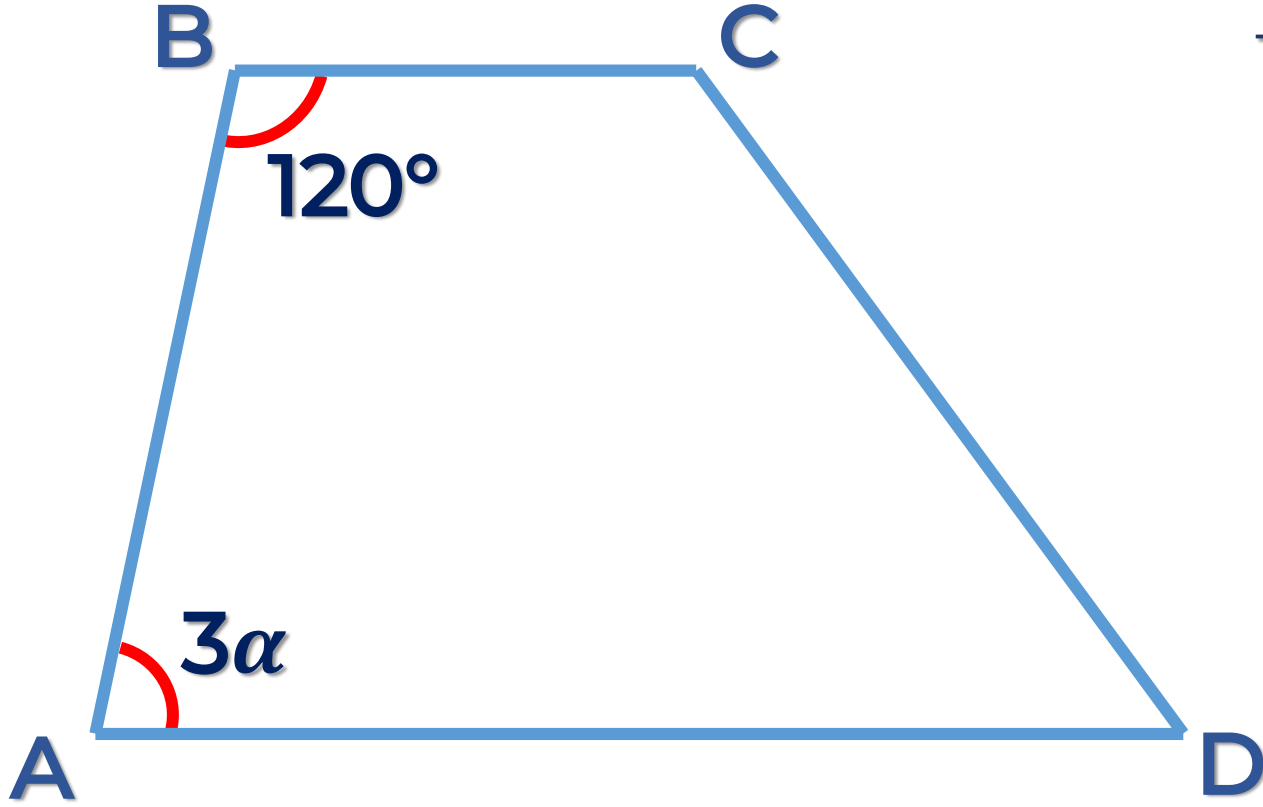


$$5x + 4x = 180^\circ$$

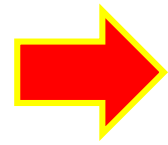
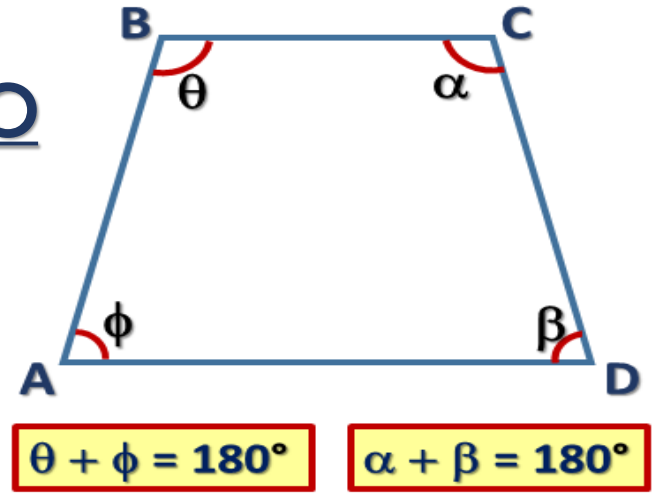
$$9x = 180^\circ$$

$$x = 20^\circ$$

2. En el trapezio ABCD ($\overline{BC} \parallel \overline{AD}$), Si la $m\angle ABC = 120^\circ$ y $m\angle BAD = 3\alpha$.
Calcule el valor de α .



TRAPECIO

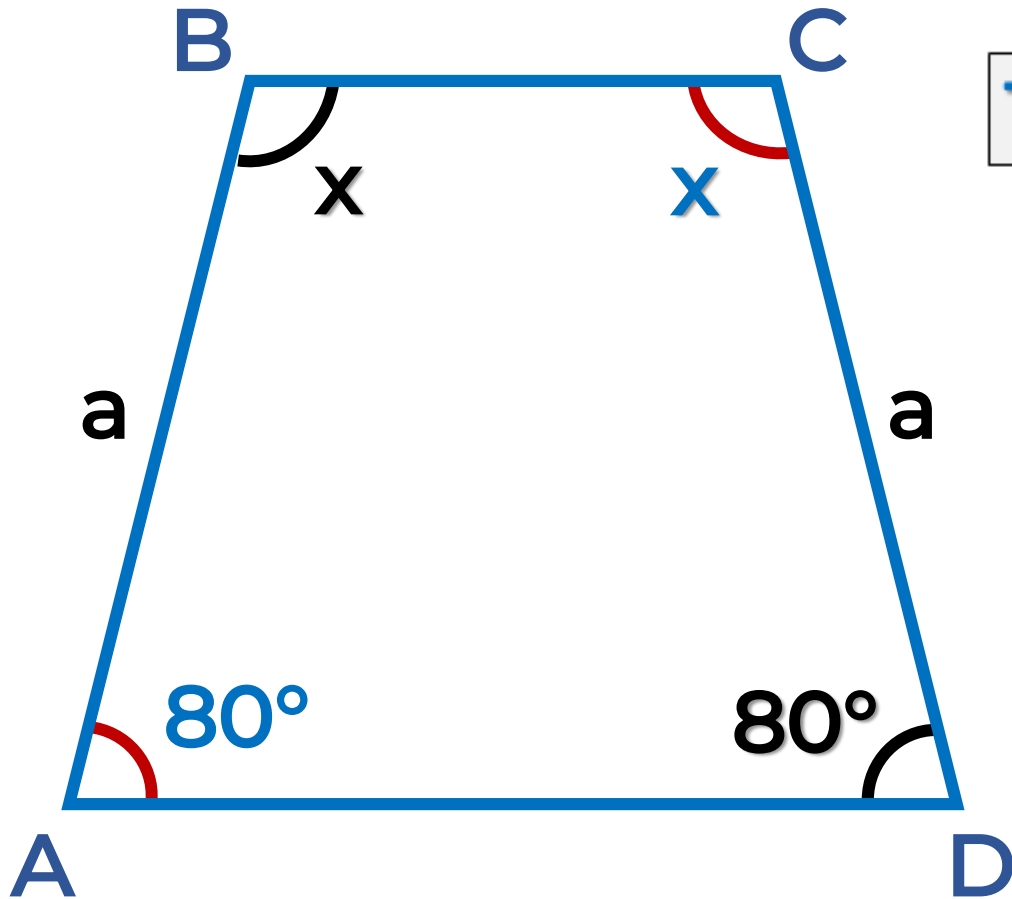


$$120^\circ + 3\alpha = 180^\circ$$

$$3\alpha = 60^\circ$$

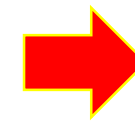
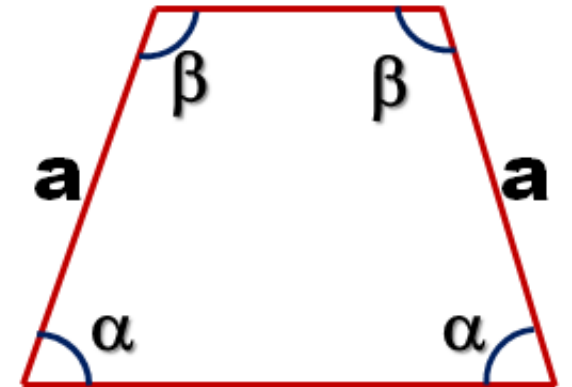
$$\alpha = 20^\circ$$

3. En un trapecio isósceles ABCD, $AB = CD$. Sabiendo que $m\angle BAD = 80^\circ$, halle $m\angle BCD$.



TRAPECIO ISÓSCELES

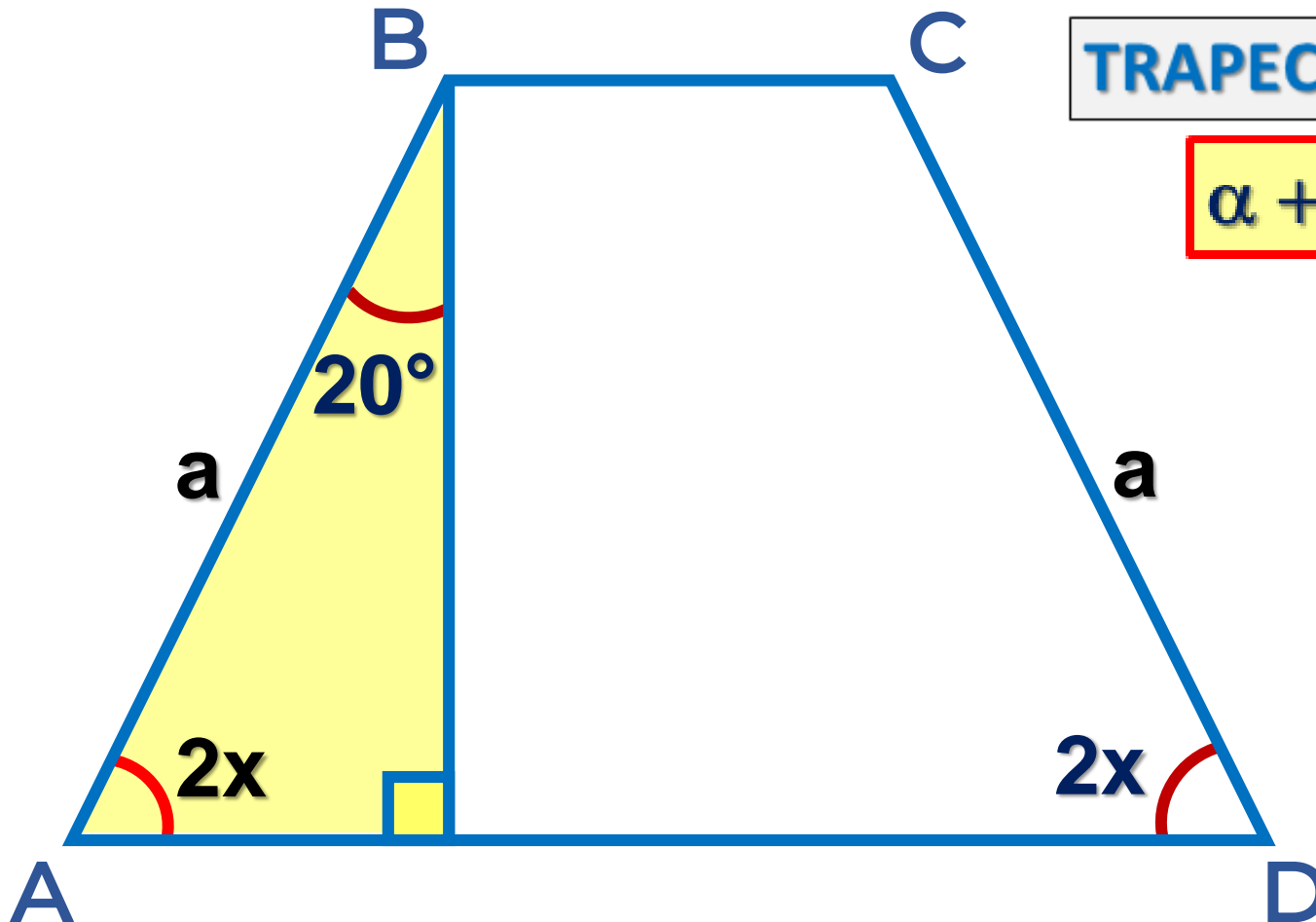
$$\alpha + \beta = 180^\circ$$



$$x + 80^\circ = 180^\circ$$

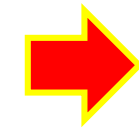
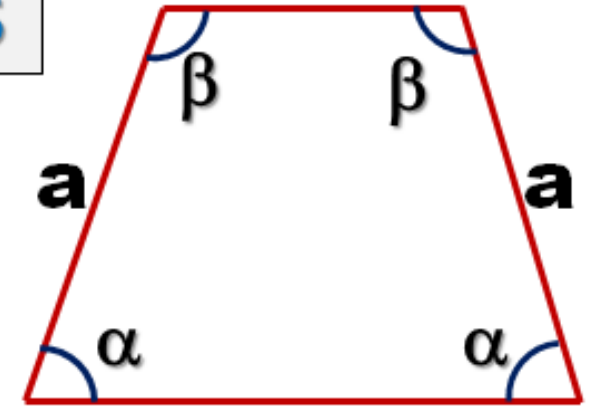
$$x = 100^\circ$$

4. Si ABCD es un trapecio isósceles, halle el valor de x.



TRAPECIO ISÓSCELES

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



$$2x + 20^\circ = 90^\circ$$

$$2x = 70^\circ$$

$$x = 35^\circ$$

5. En el trapezio ABCD isósceles ($\overline{BC} \parallel \overline{AD}$), halle PD.

- ABCD (TRAPECIO ISÓSCELES)

$CD = AB = 8$

- $\overline{AD} \parallel \overline{BC}$ (Áng. alternos internos)

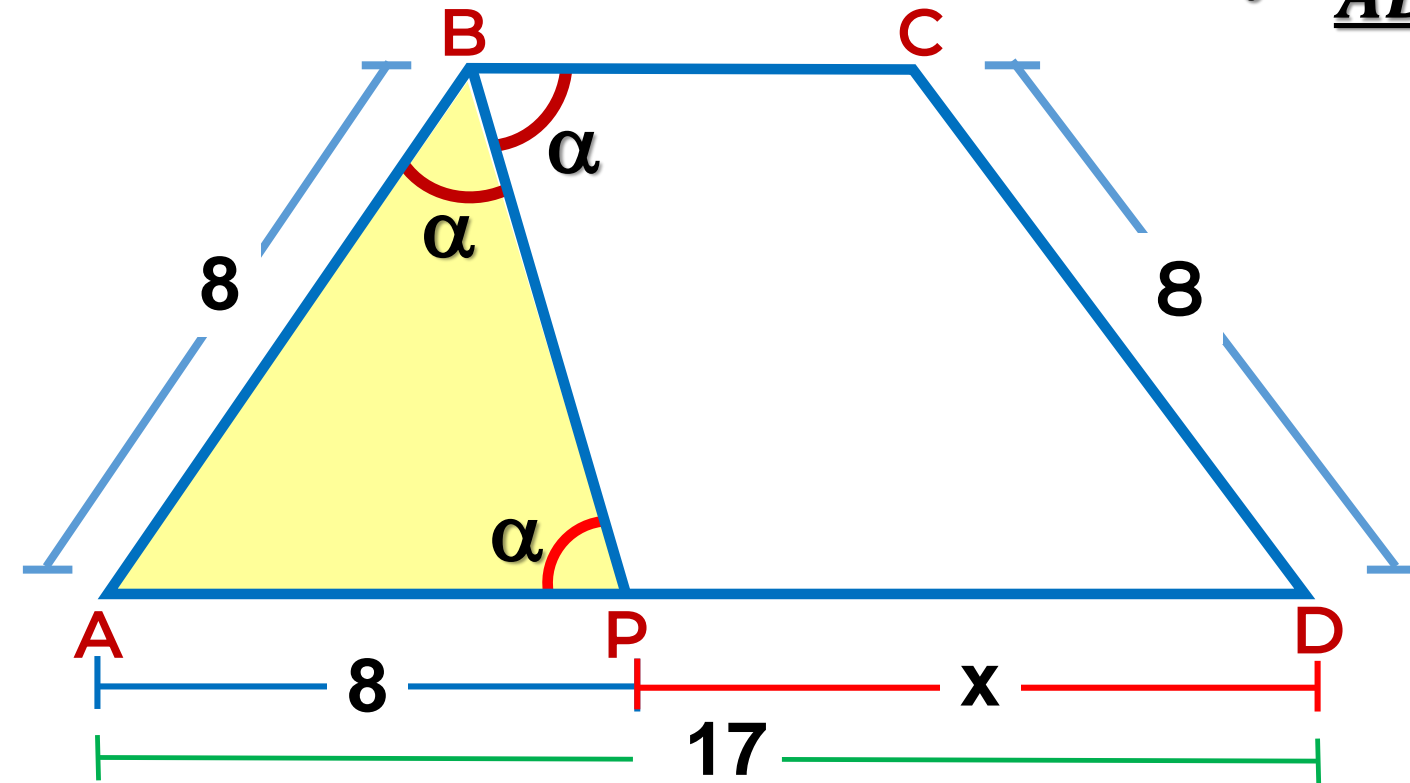
- $\triangle BAP$ (ISÓSCELES)

$AP = AB = 8$

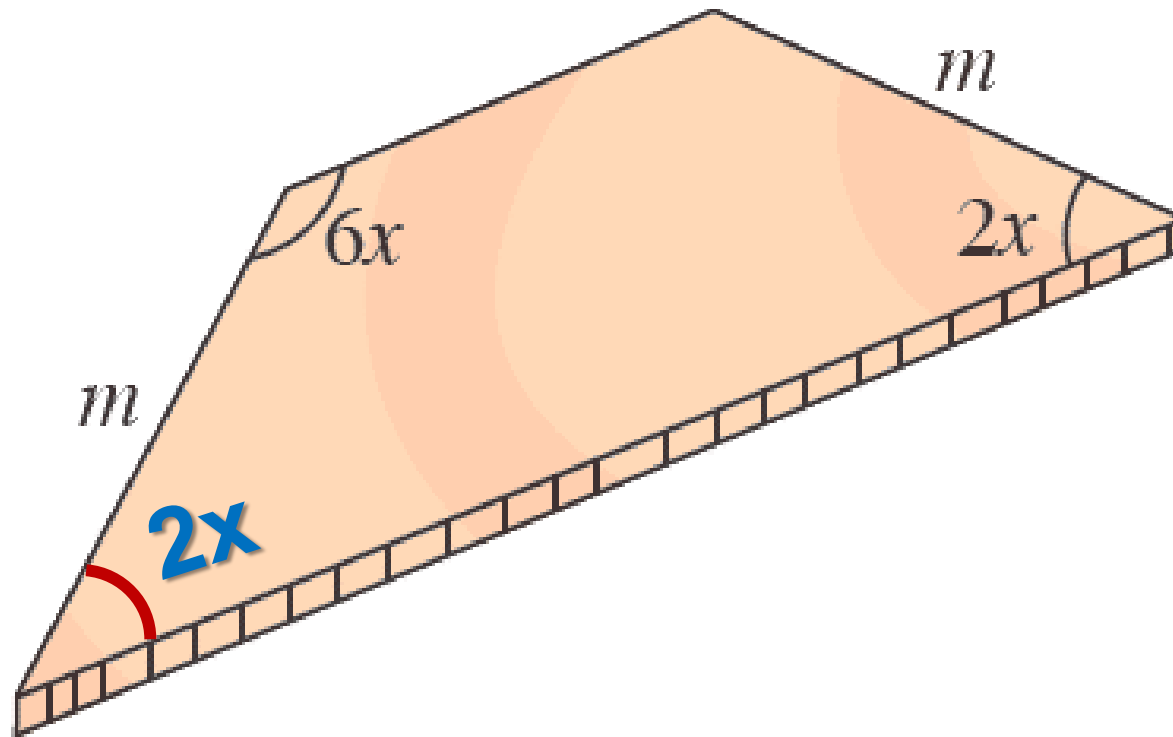
- EN \overline{AD} $AD = AP + PD$

$$17 = 8 + x$$

$$9 = x$$

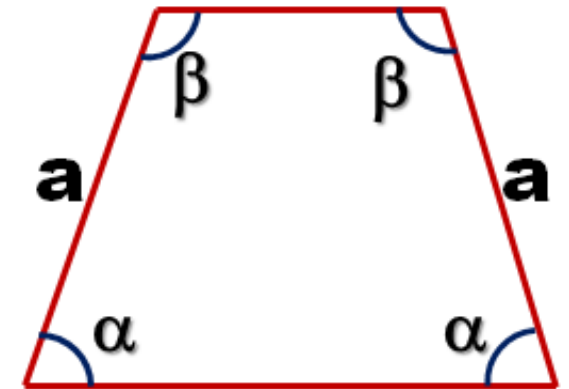


6. En el gráfico se muestra una tabla en forma de trapezio isósceles. Halle el valor de x .



TRAPECIO ISÓSCELES

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



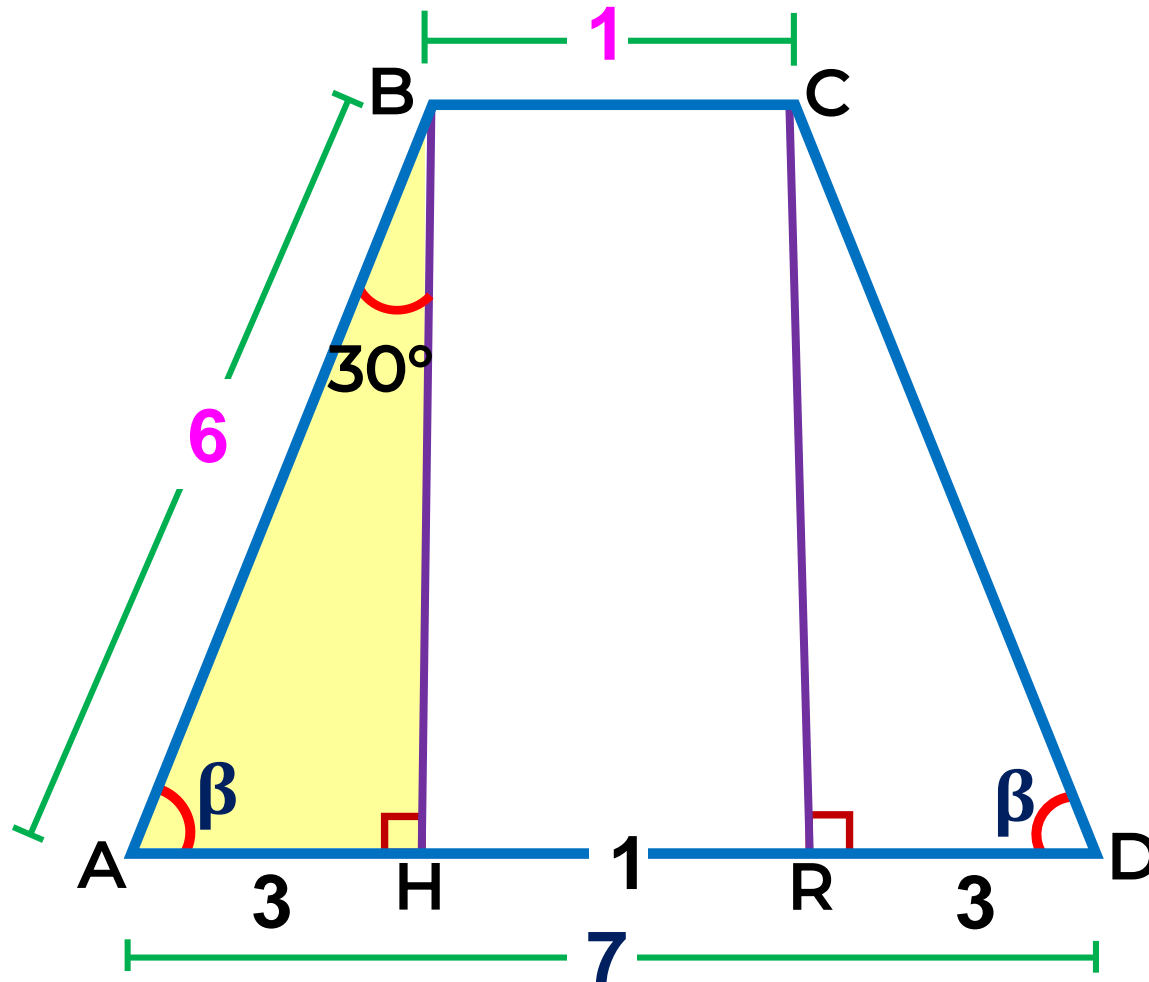
$$6x + 2x = 180^\circ$$

$$8x = 180^\circ$$

$$x = 22.5^\circ$$



7. Se muestra una mesa trapezoidal isósceles, cuyas bases miden 7 m y 1 m; los lados laterales miden 6 m cada uno. Halle el valor de β .



- Trapecio ABCD (Isósceles)
- Se trazan las alturas \overline{BH} y \overline{CR}
- HBCR (Rectángulo)
 $BC = HR = 1$
- ADEMÁS
 $AH = RD = 3$
- $\triangle AHB$ (Notable $30^\circ - 60^\circ$)

$$\beta = 60^\circ$$