

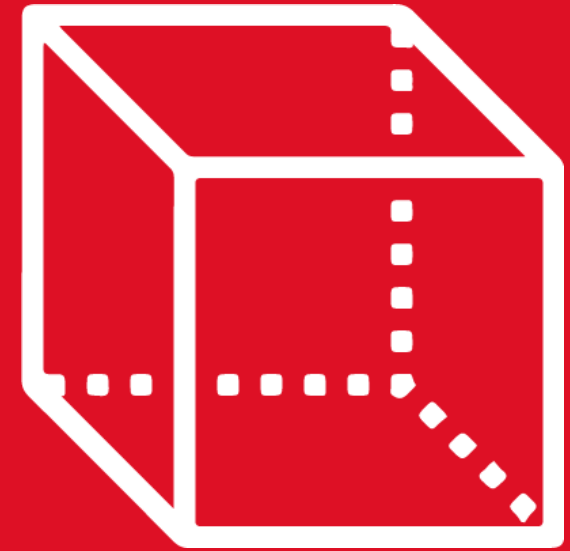
GEOMETRÍA

Sesión 1

Tomo 2

3th
SECONDARY

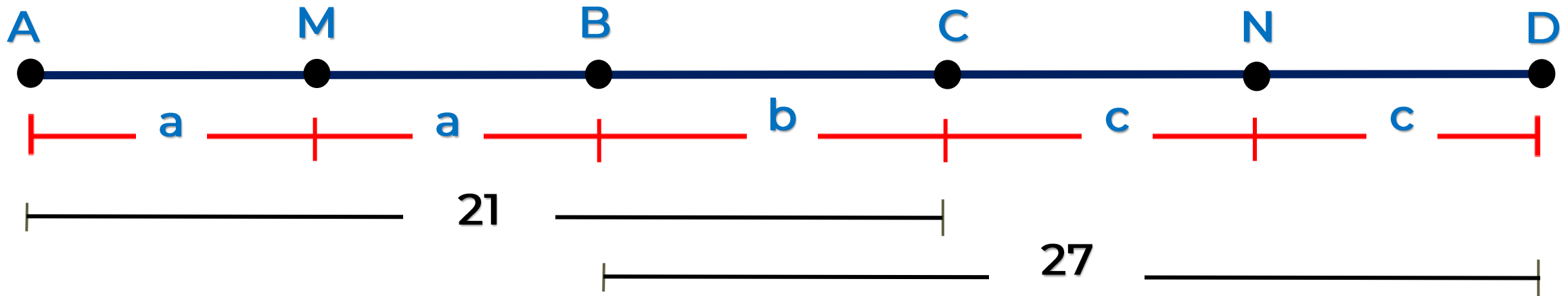
ASESORIA



 **SACO OLIVEROS**



1. En la figura, M y N son puntos medios de \overline{AB} y \overline{CD} respectivamente. Calcule MN.



Del gráfico

$$\begin{array}{rcl}
 \rightarrow 2a + b & = & 21 \\
 2c + b & = & 27 \\
 \hline
 2a + 2b + 2c & = & 48 \\
 a + b + c & = & 24
 \end{array}$$

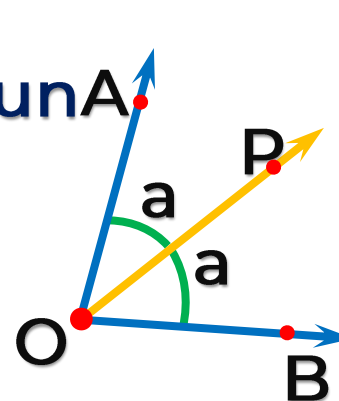
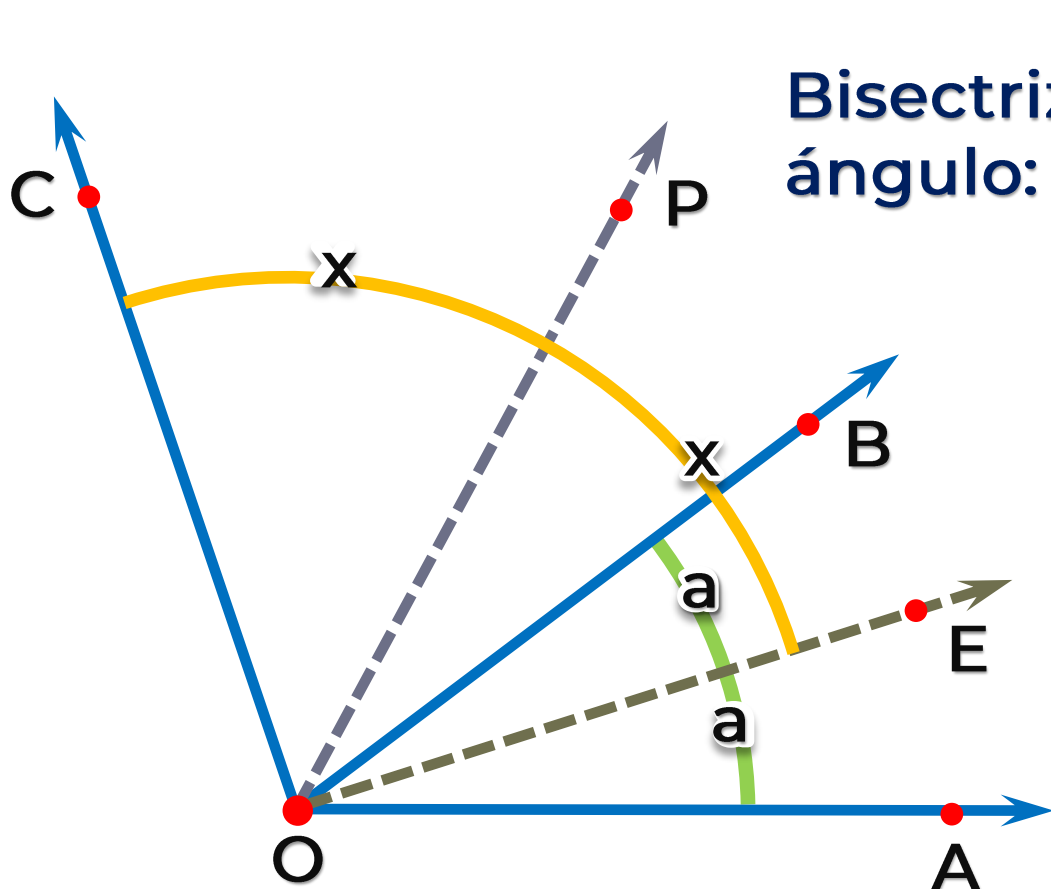
Nos piden

$$MN = \underbrace{a + b + c}_{24}$$

$$MN = 24$$



2. En la figura, \overrightarrow{OE} es bisectriz del $\angle AOB$ y \overrightarrow{OP} es bisectriz $\angle EOC$; si $m\angle AOB + 2(m\angle BOC) = 148^\circ$. Calcule $m\angle EOP$.



Dato:

$$m\angle AOB + 2(m\angle BOC) = 148^\circ$$

$$2a + 2(2x - a) = 148^\circ$$

$$2a + 4x - 2a = 148^\circ$$

$$4x = 148^\circ$$

$$x = 37^\circ$$



3. En un día muy caluroso Paolo le pregunta a Ricardo, ¿a cuantos grados nos encontraremos?. A lo que Ricardo le contesta: si el complemento de un ángulo es al suplemento del mismo ángulo como 2 es a 5, determina la medida del ángulo y sabrás a cuantos grados estamos.

Sea **a** el ángulo que se pide

$C_{(a)}$: complemento $a = (90^\circ - a)$

$S_{(a)}$: suplemento $a = (180^\circ - a)$

Dato:

$$\frac{C_{(a)}}{S_{(a)}} = \frac{2}{5}$$

$$\Rightarrow \frac{90^\circ - a}{180^\circ - a} = \frac{2}{5}$$

$$5(90^\circ - a) = 2(180^\circ - a)$$

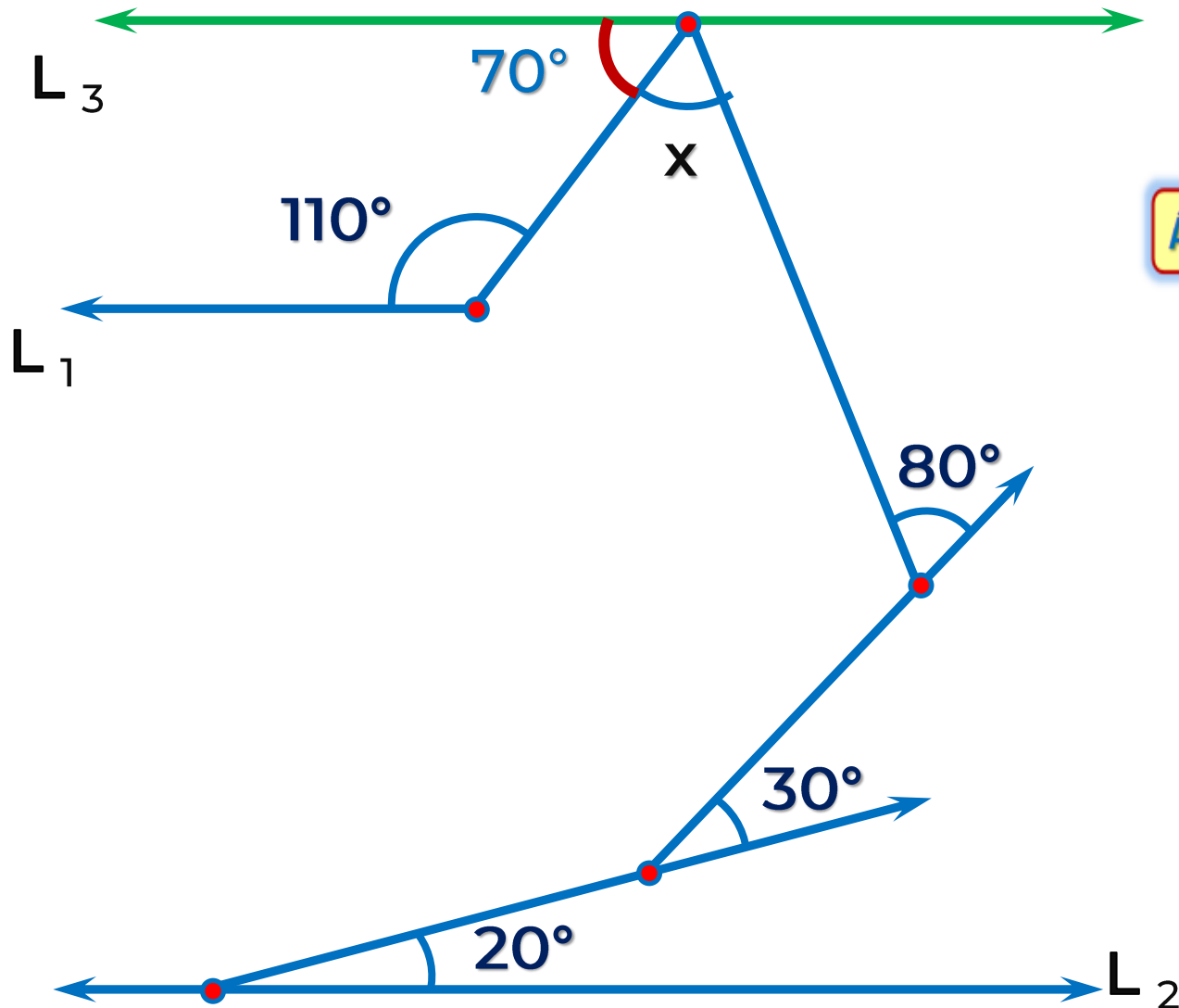
$$450^\circ - 5a = 360^\circ - 2a$$

$$90^\circ = 3a$$

$$x = 30^\circ$$

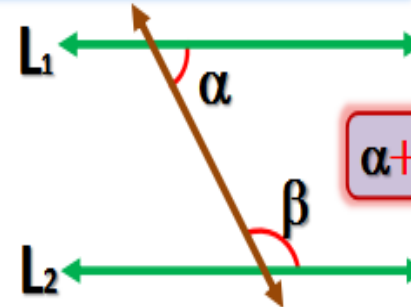


4. En la figura, calcular el valor de x . Si $L_1 \parallel L_2$.

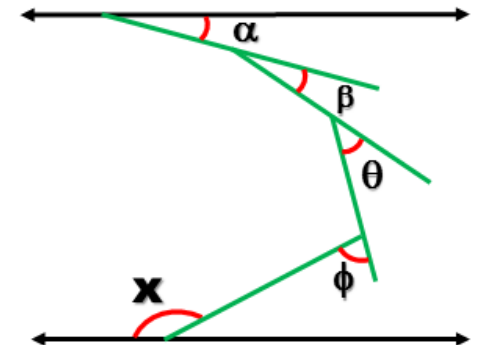


$L_1 \parallel L_2 \parallel L_3$

ÁNGULOS CONJUGADOS



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



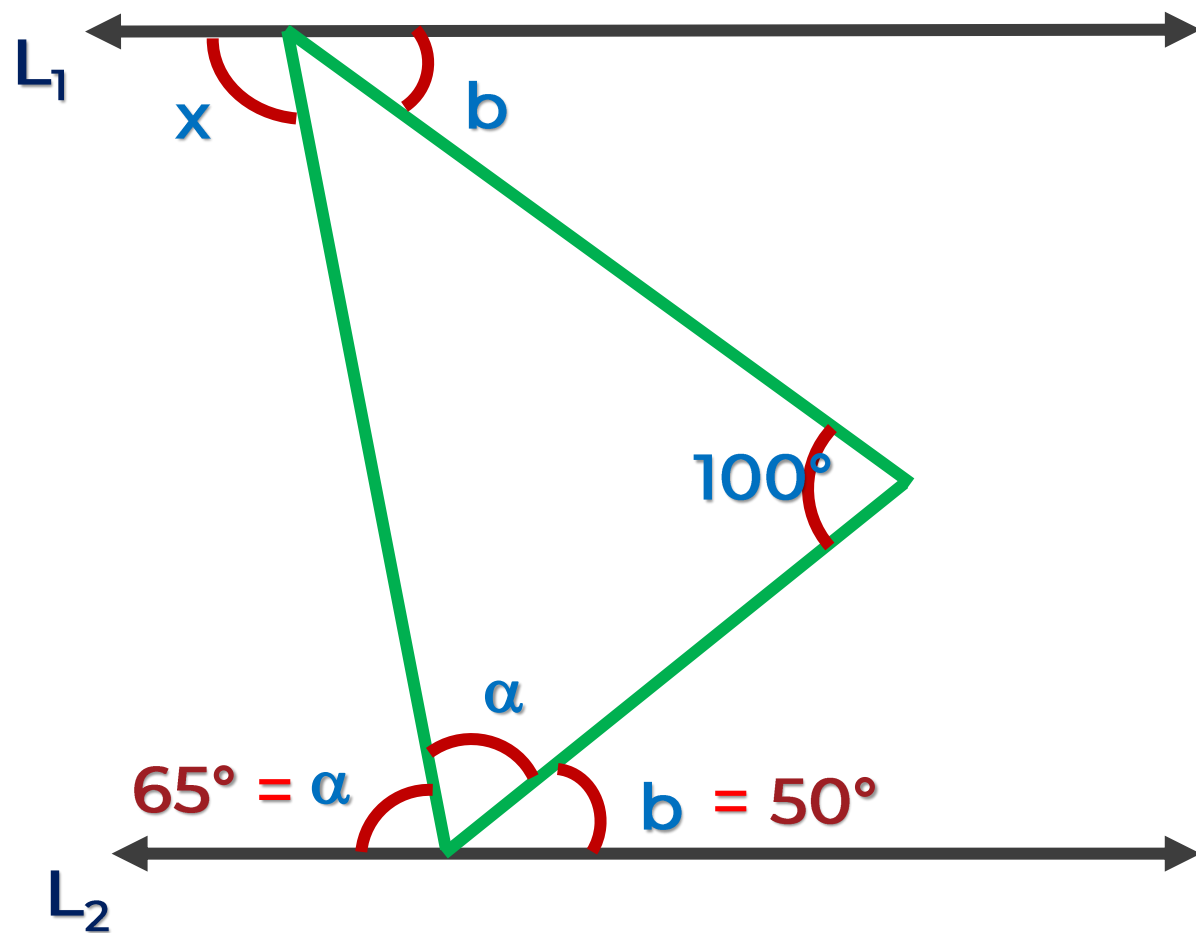
$$x = \alpha + \beta + \theta + \phi$$

$$\begin{aligned} \Rightarrow 20^\circ + 30^\circ + 80^\circ &= 70^\circ + x \\ 130^\circ &= 70^\circ + x \end{aligned}$$

$$x = 60^\circ$$



5. Si $L_1 \parallel L_2$, halle el valor de x .



- $$b + b = 100^\circ$$

$$2b = 100^\circ$$

$$b = 50^\circ$$

- $$2\alpha + b = 180^\circ$$

$$2\alpha + 50^\circ = 180^\circ$$

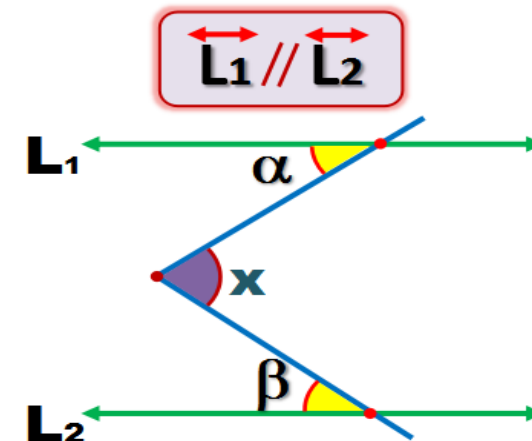
$$2\alpha = 130^\circ$$

$$\alpha = 65^\circ$$

→

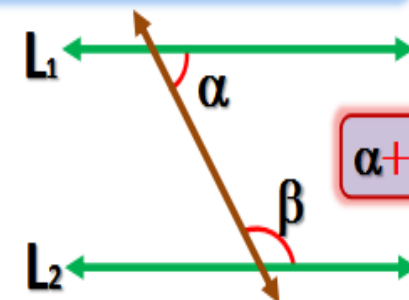
- $$x + 65^\circ = 180^\circ$$

$$x = 115^\circ$$



$$x = \alpha + \beta$$

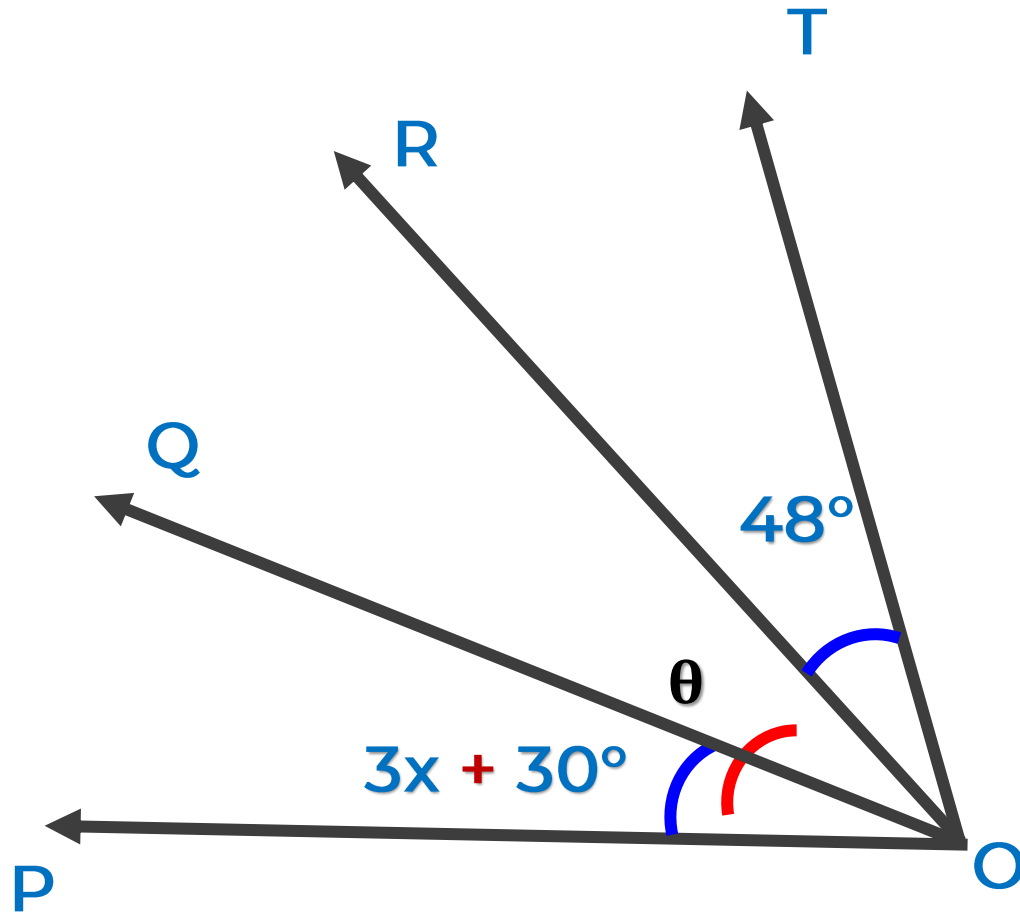
ÁNGULOS CONJUGADOS



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



6. En la figura, halle el valor de “x” si los ángulos TOQ y ROP son congruentes.



- Por dato

$$m\angle TOQ = m\angle ROP$$

- Reemplazando:

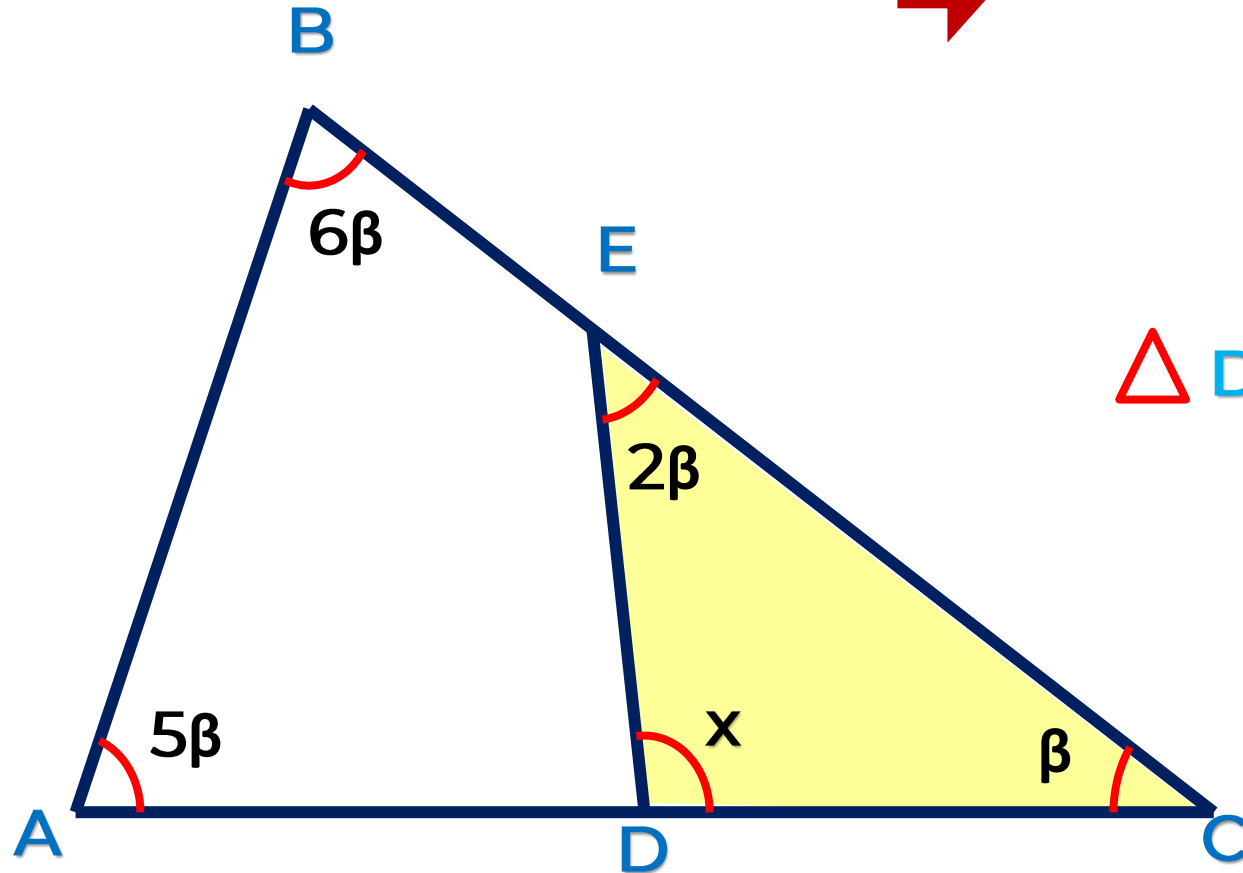
$$\cancel{\theta} + 48^\circ = \cancel{\theta} + 3x + 30^\circ$$

$$18^\circ = 3x$$

$$x = 6^\circ$$



7. Halle el valor de x.



→ $\triangle ABC: 5\beta + 6\beta + \beta = 180^\circ$
 $12\beta = 180^\circ$

$\beta = 15^\circ$

$\triangle DEC: x + 2\beta + \beta = 180^\circ$

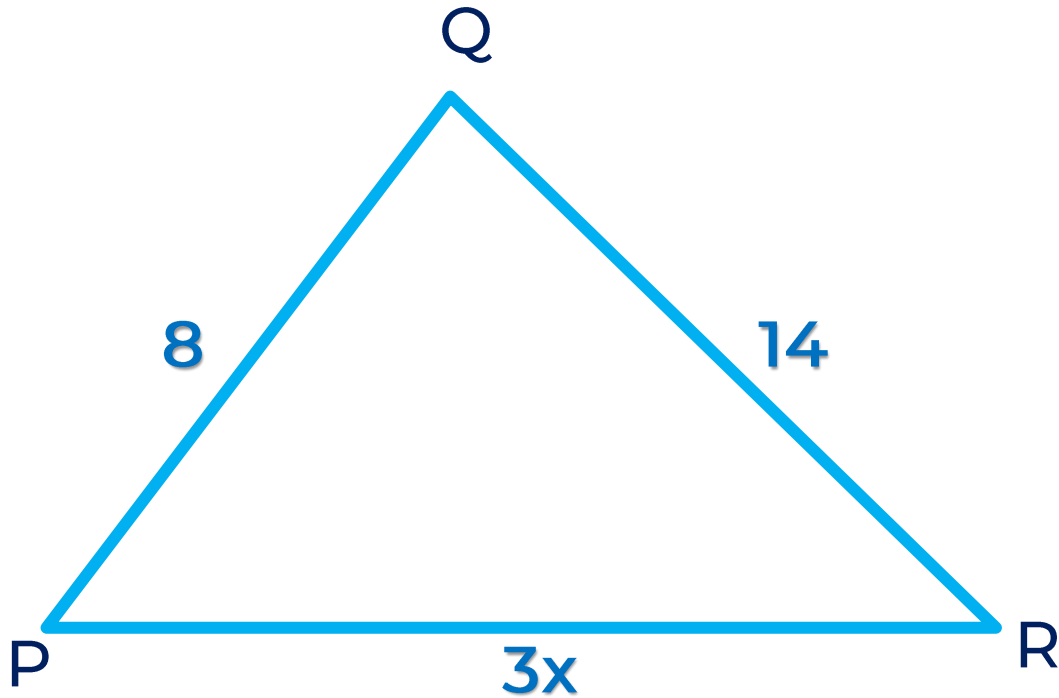
$x + 3\beta = 180^\circ$

$x + 3(15^\circ) = 180^\circ$

$x = 135^\circ$



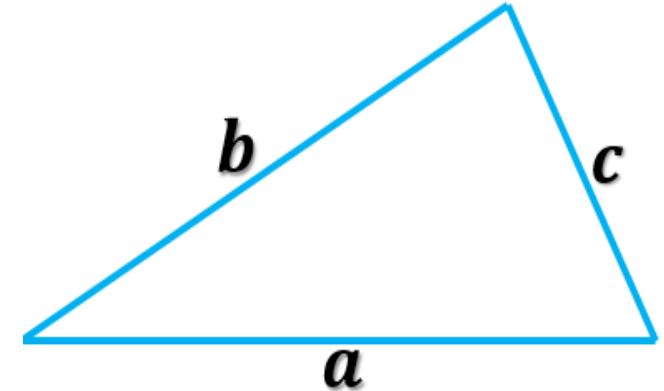
8. Calcule la suma de valores enteros de x.



• **Teorema de la existencia**

donde: $c < b < a$

$$b - c < a < b + c$$



$$14 - 8 < 3x < 14 + 8$$

$$6 < 3x < 22$$

$$2 < x < 7,3...$$

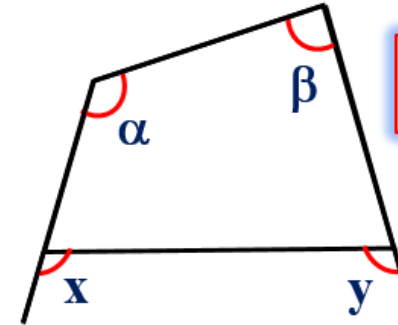
$$x = 3; 4; 5; 6; 7$$

Nos piden:

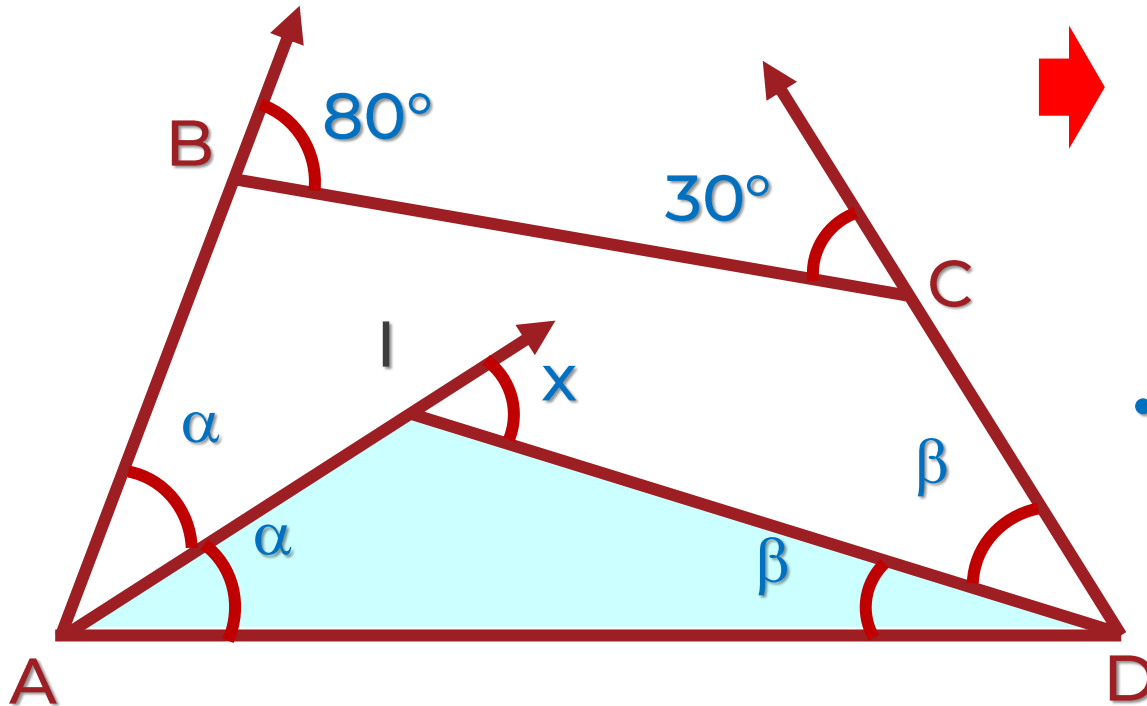
$$3 + 4 + 5 + 6 + 7 = 25$$



9. En la figura, halle el valor de x.



$$x + y = \alpha + \beta$$



- $$2\alpha + 2\beta = 80^\circ + 30^\circ$$

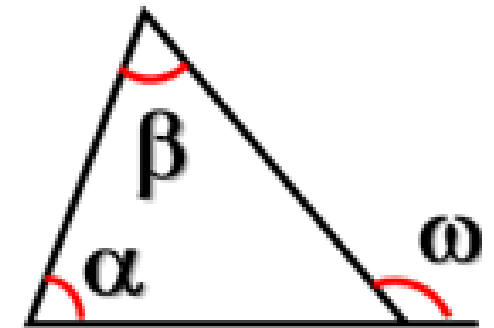
$$2\alpha + 2\beta = 110^\circ$$

$$\alpha + \beta = 55^\circ$$

• En el $\triangle AID$:

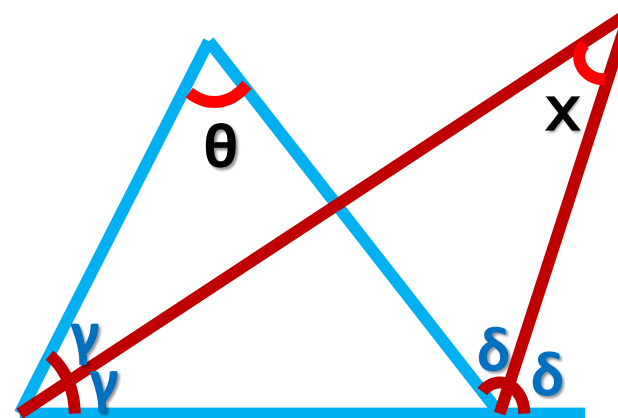
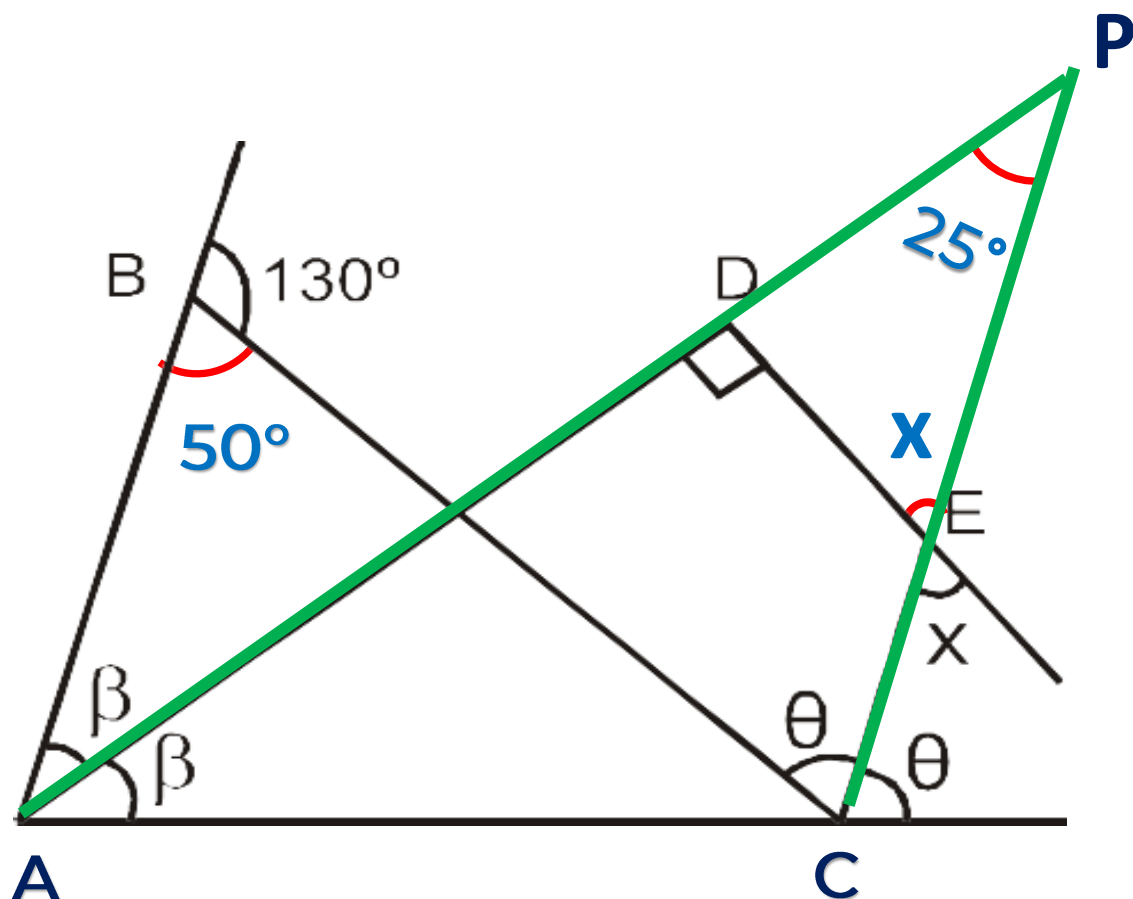
$$x = \underbrace{\alpha + \beta}_{55^\circ}$$

$$x = 55^\circ$$



$$\omega = \alpha + \beta$$

10. En la figura, calcule X



$$x = \frac{\theta}{2}$$

- $\triangle ABC$:
 $m\angle APC = 25^\circ$
- En el $\triangle DPE$:

$$\Rightarrow x + 25^\circ = 90^\circ$$

$$x = 65^\circ$$