

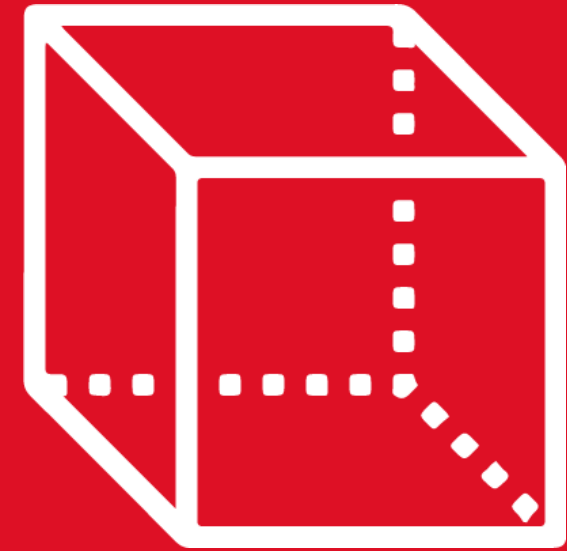


# GEOMETRÍA

## RETROALIMENTACIÓN

3th  
SECONDARY

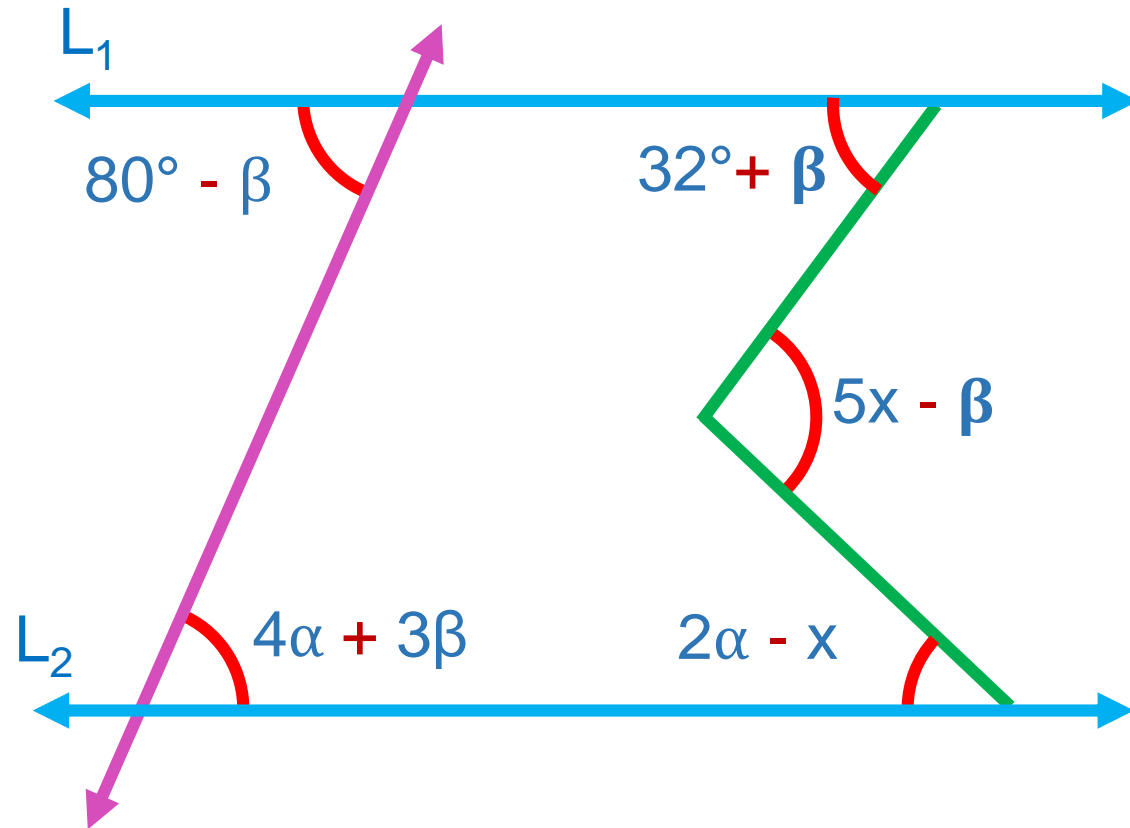
**TOMO 2**



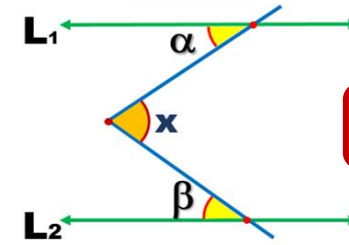
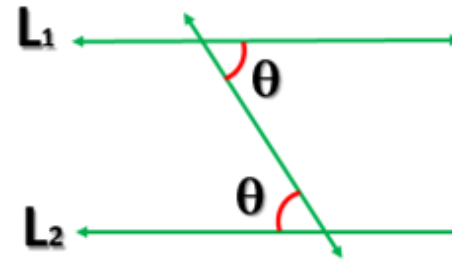
 **SACO OLIVEROS**



# 1. Si $L_1 \parallel L_2$ , halle $x$ .



Ángulos alternos internos



$$\alpha + \beta = x$$

- $$80^\circ - \beta = 4\alpha + 3\beta$$

$$80^\circ = 4\alpha + 4\beta$$

$$20^\circ = \alpha + \beta$$

- $$5x - \beta = 2\alpha - x + 32^\circ + \beta$$

$$6x = 2\alpha + 2\beta + 32^\circ$$

$$6x = 2(\alpha + \beta) + 32^\circ$$

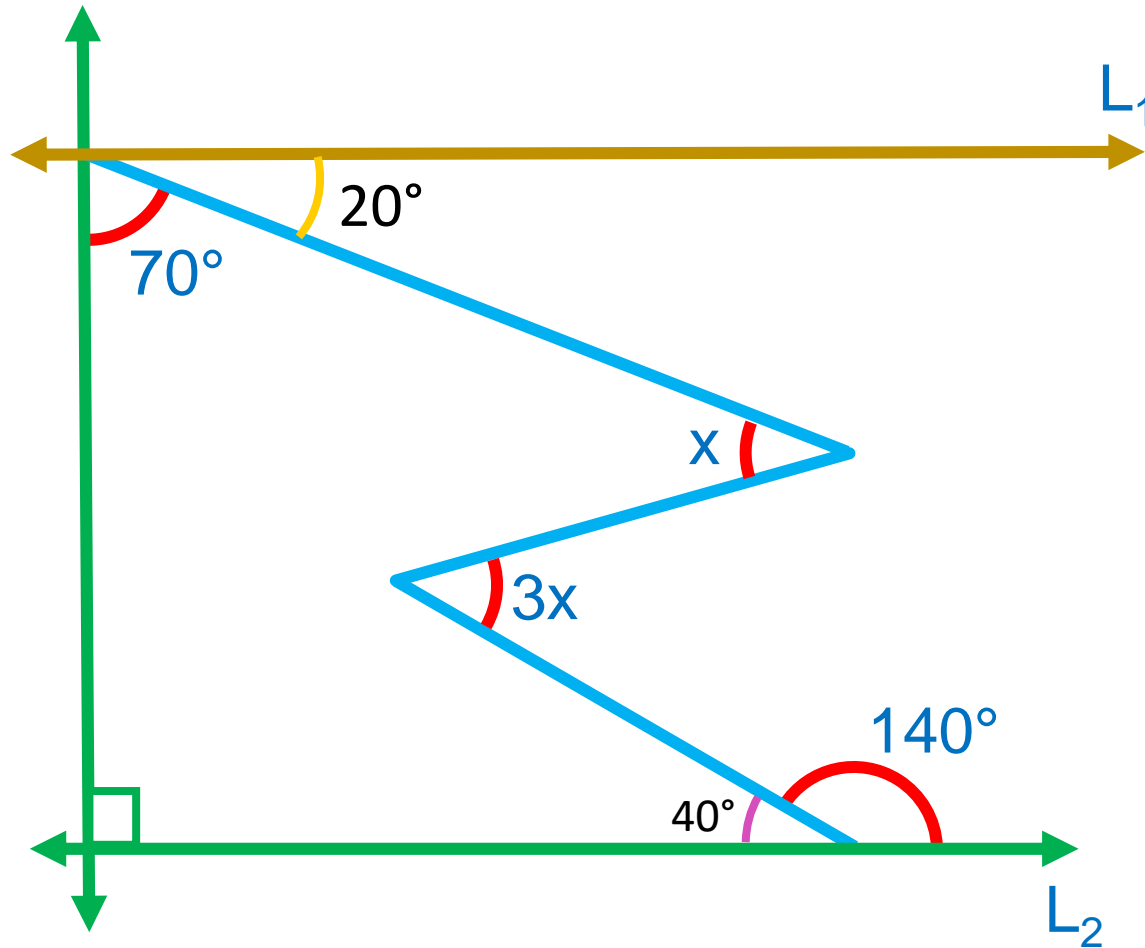
$$6x = 2(20^\circ) + 32^\circ$$

$$6x = 72^\circ$$

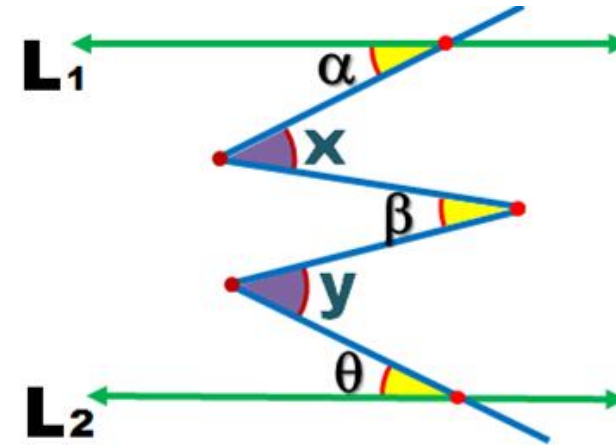
$$\therefore x = 12^\circ$$



2. Halle el valor de  $x$ .



## Resolución



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

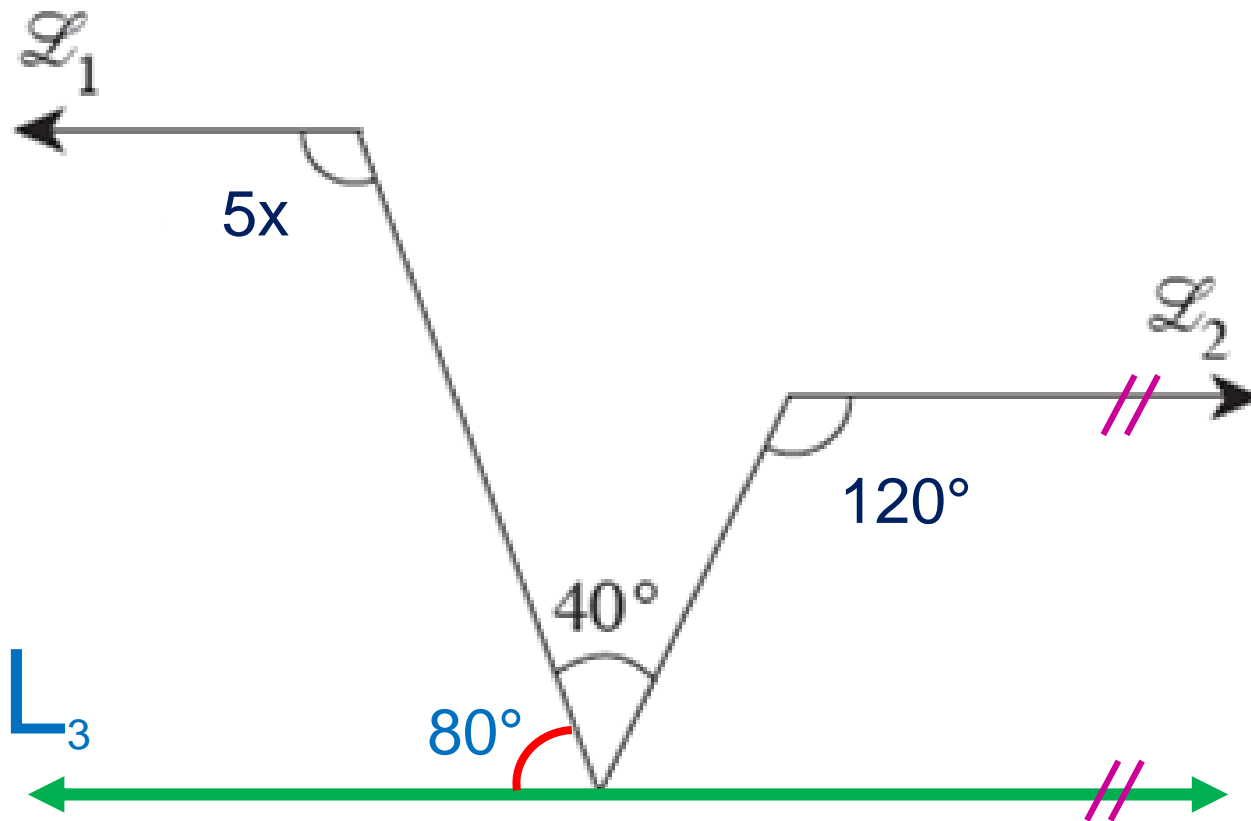
$$20^\circ + 3x = x + 40^\circ$$

$$2x = 20^\circ$$

$$\therefore x = 10^\circ$$

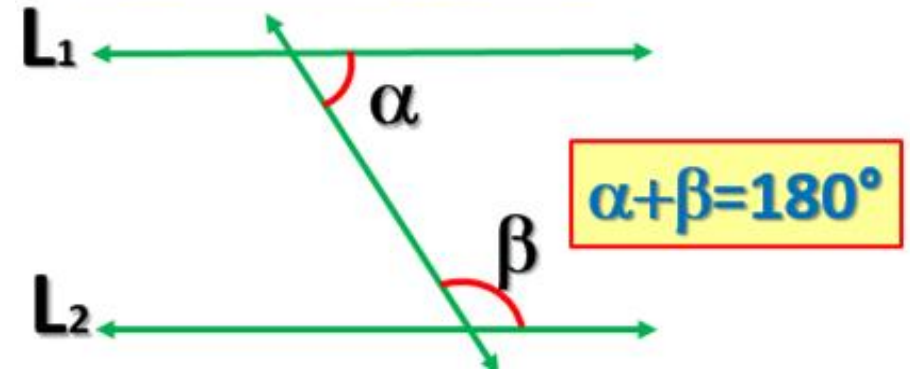


3. Si  $\overleftrightarrow{L_1} \parallel \overleftrightarrow{L_2}$ , halle el valor de  $x$ .



### Resolución

#### Ángulos conjugados



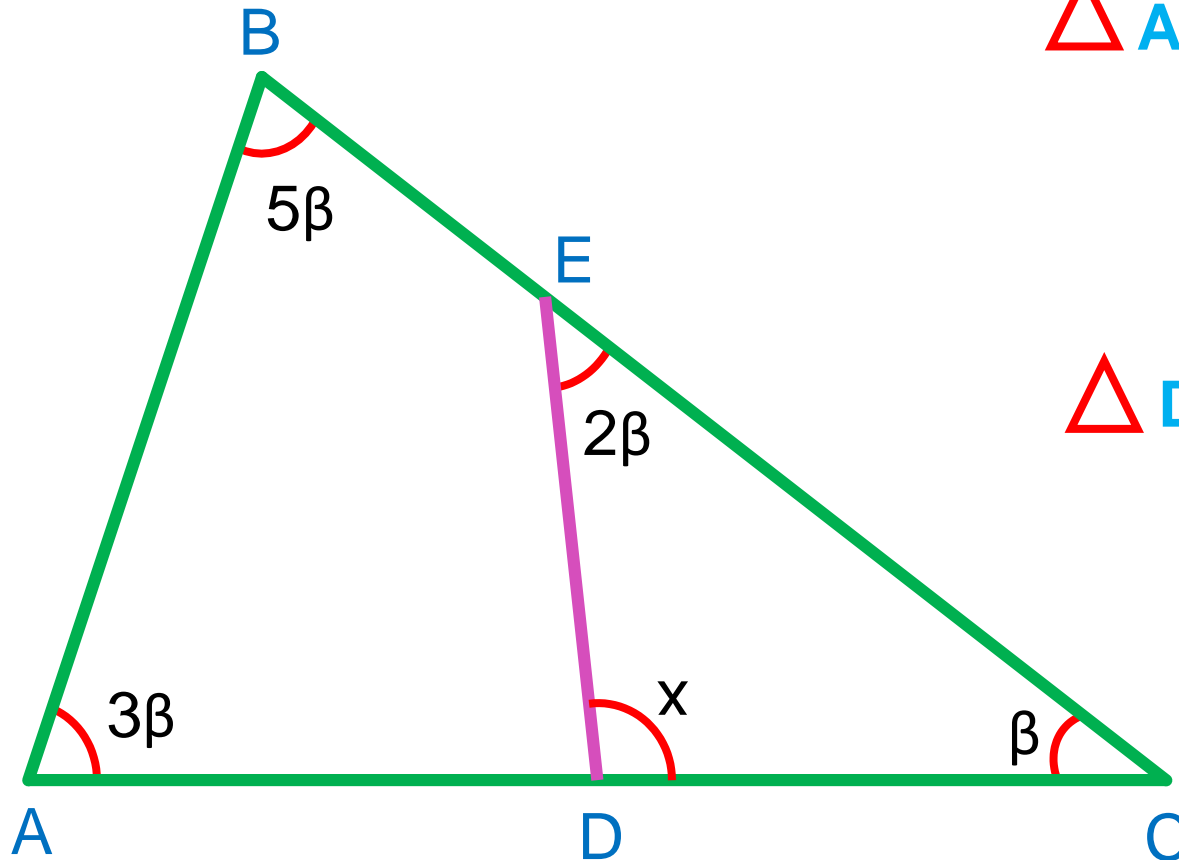
$$5x + 80^\circ = 180^\circ$$

$$5x = 100^\circ$$

$$\therefore x = 20^\circ$$



4. Halle el valor de  $x$ .



$$\triangle ABC : 3\beta + 5\beta + \beta = 180^\circ$$

$$9\beta = 180^\circ$$

$$\beta = 20^\circ$$

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

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

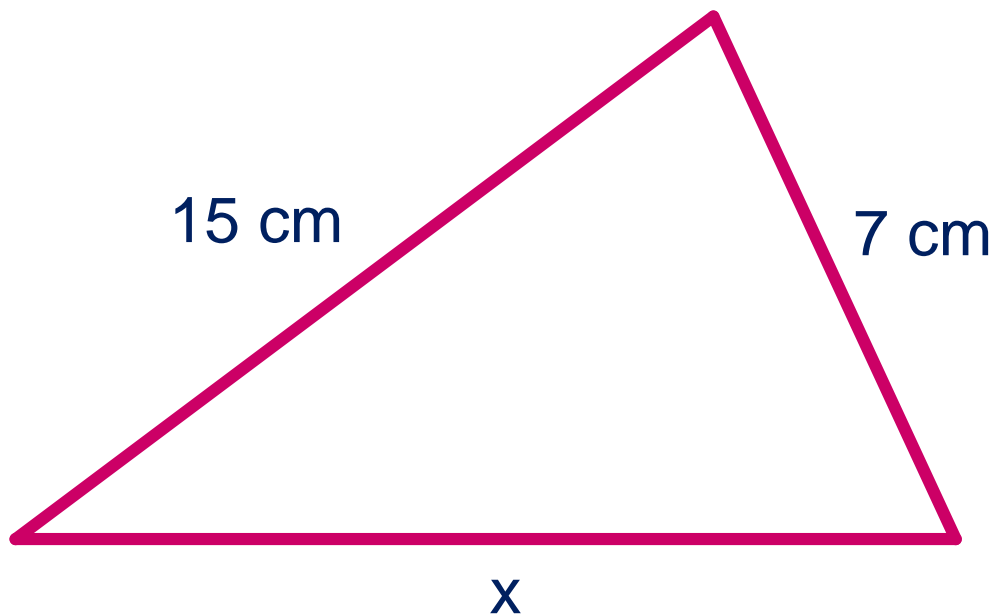
$$x + 3(20^\circ) = 180^\circ$$

$$\therefore x = 120^\circ$$



5. Las longitudes de los lados de un triángulo son 7 cm y 15 cm. Calcule la suma entre el máximo y el mínimo valor entero que puede tomar la longitud del tercer lado.

### Resolución



Por teorema de la existencia :

$$15 - 7 < x < 15 + 7$$

$$8 < x < 22$$

$$x_{\min} \quad + \quad x_{\max}$$



$$9$$



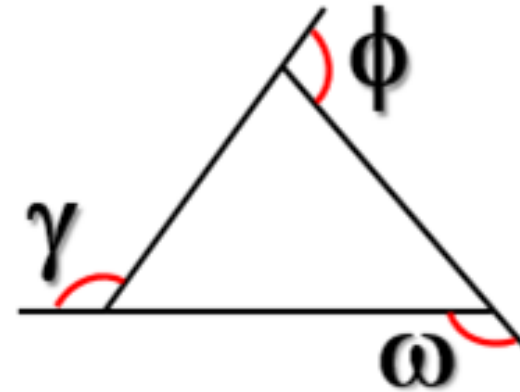
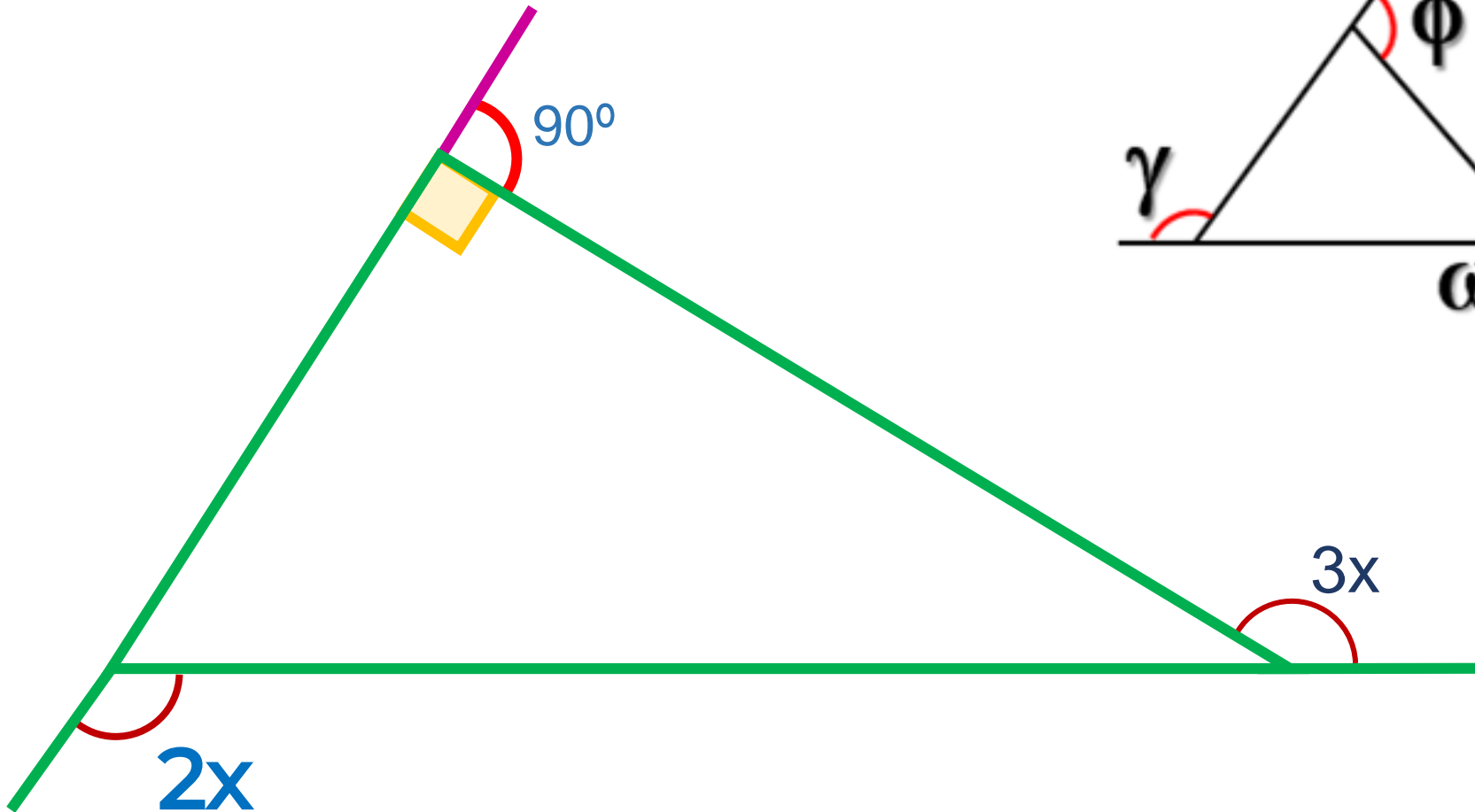
$$21$$

$$\therefore x_{\min} + x_{\max} = 30$$



6. Halle el valor de  $x$ .

*Resolución*



$$\omega + \varphi + \gamma = 360^\circ$$

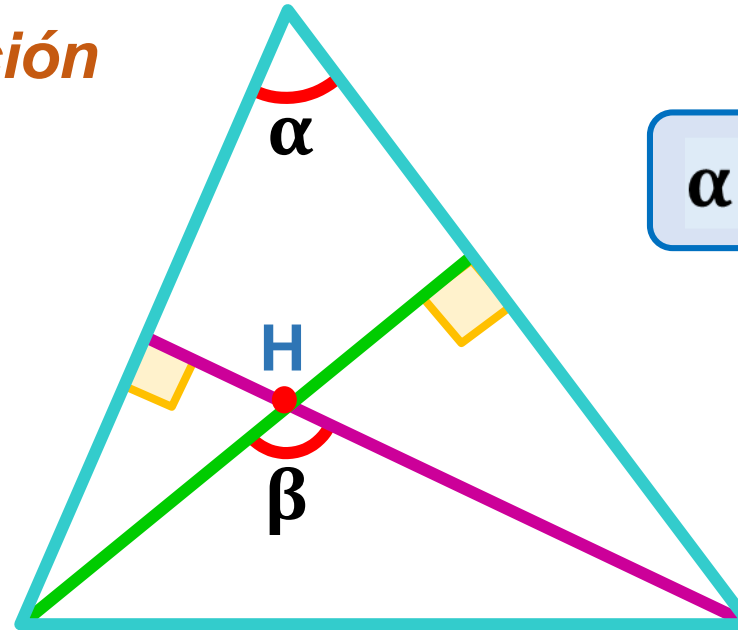
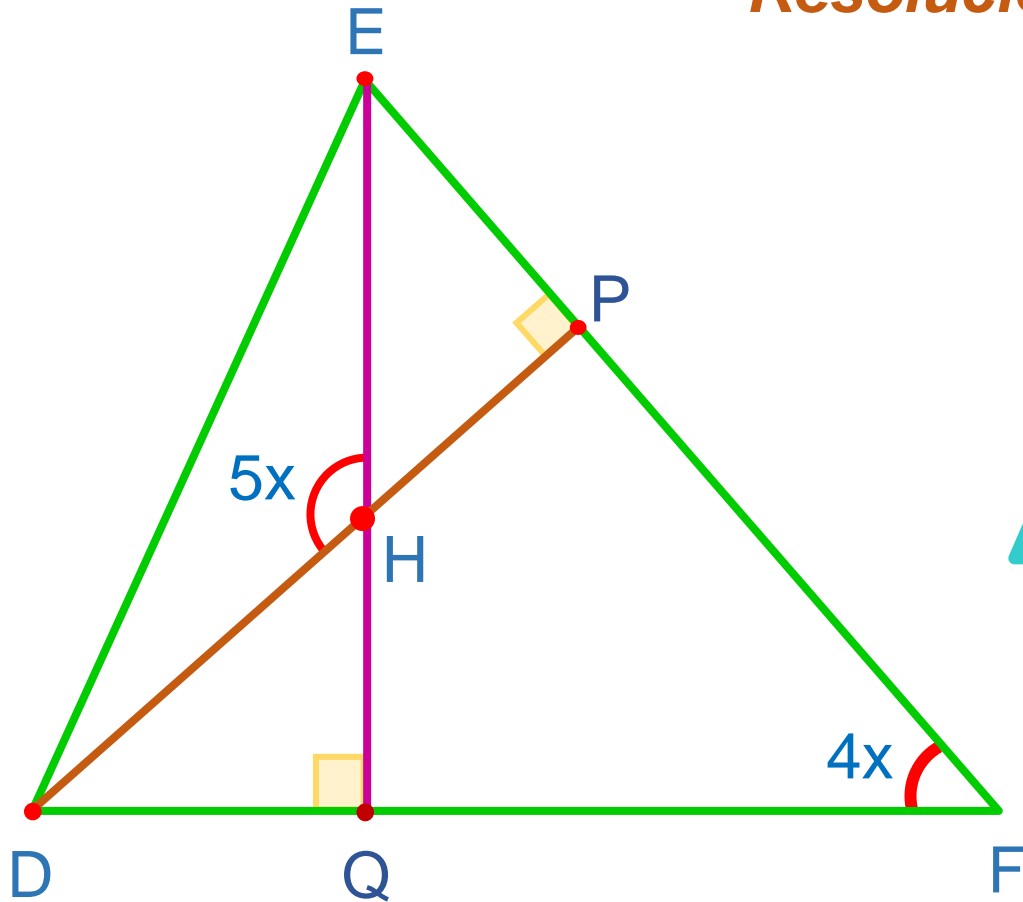
$$3x + 2x + 90^\circ = 360^\circ$$

$$5x = 270^\circ$$

$$\therefore x = 54^\circ$$

7. En la siguiente figura  $\overline{EQ}$  y  $\overline{DP}$  son alturas, halle el valor de  $x$ .

*Resolución*



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

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

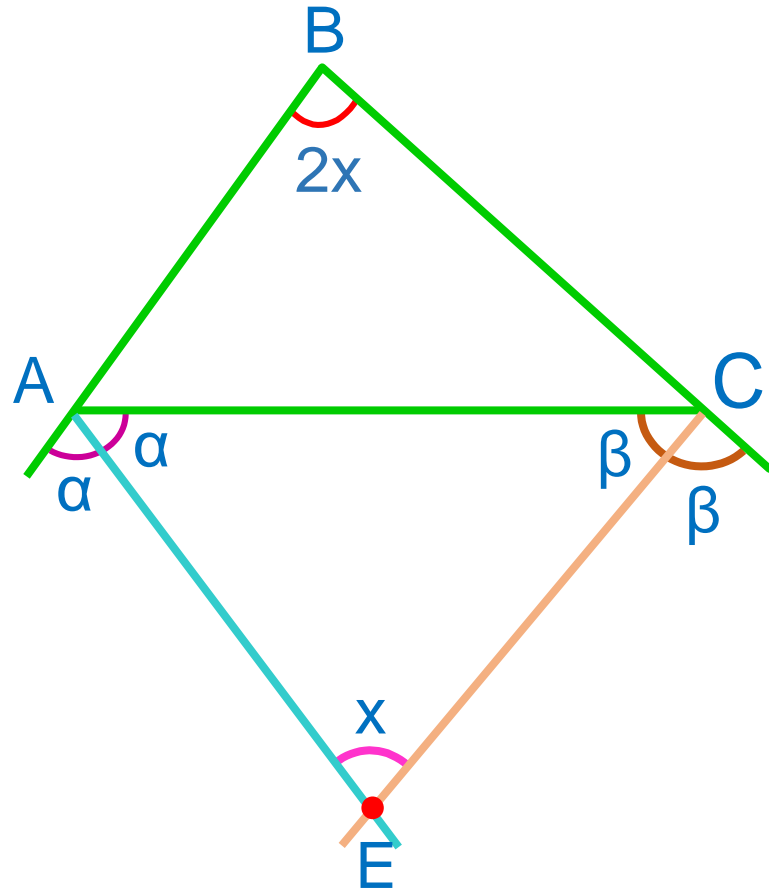
$$9x = 180^\circ$$

$$\therefore x = 20^\circ$$





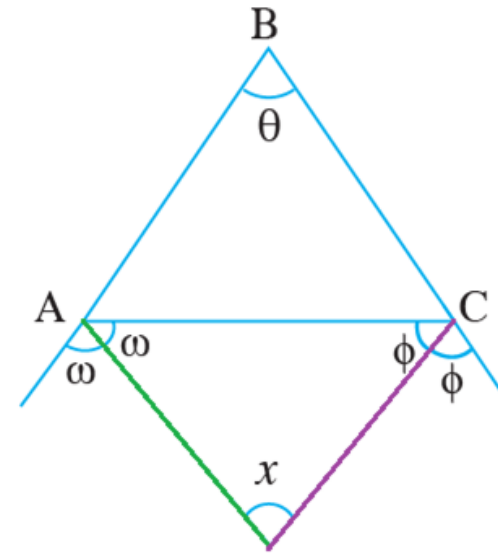
8. En un triángulo ABC, las bisectrices exteriores de los ángulos A y C, se intersecan en E. Si  $m\angle ABC = 2x$  y  $m\angle AEC = x$ , halle el valor de  $x$ .



### Resolución

En el gráfico se cumple

$$x = 90^\circ - \frac{\theta}{2}$$



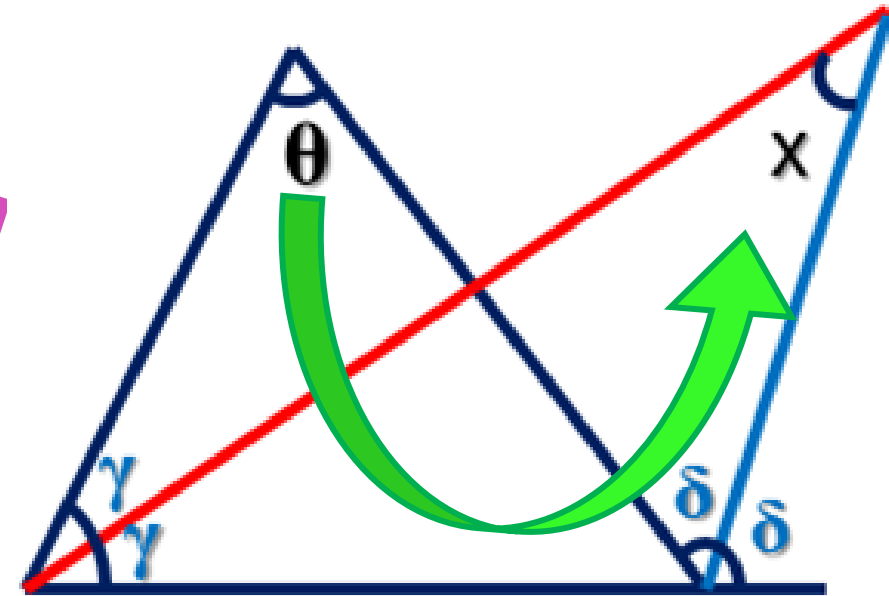
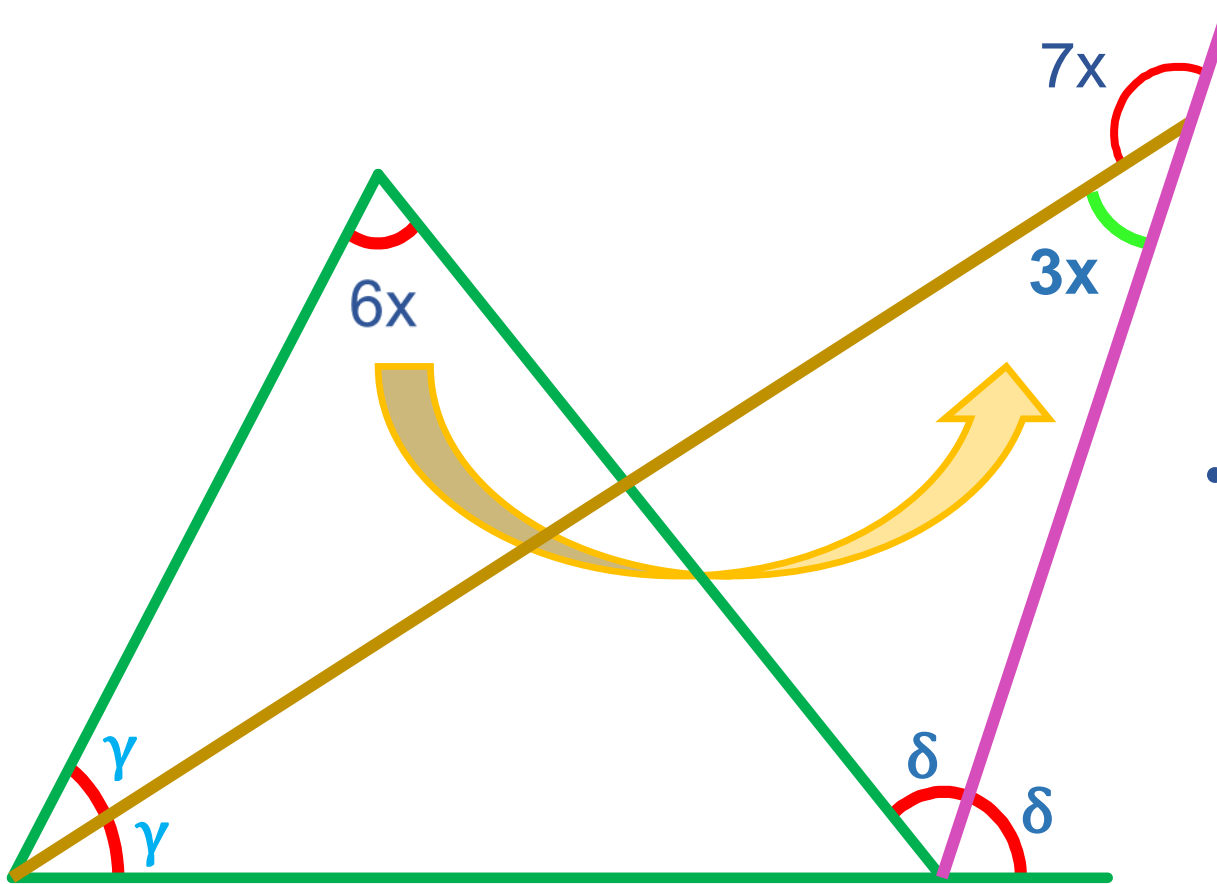
Entonces:

$$x = 90^\circ - \frac{2x}{2} \Rightarrow x = 90^\circ - x$$

$$\therefore x = 45^\circ$$



9. En el gráfico, halle el valor de  $x$ .



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

• Del gráfico:

$$7x + 3x = 180^\circ$$

$$10x = 180^\circ$$

$$\therefore x = 18^\circ$$

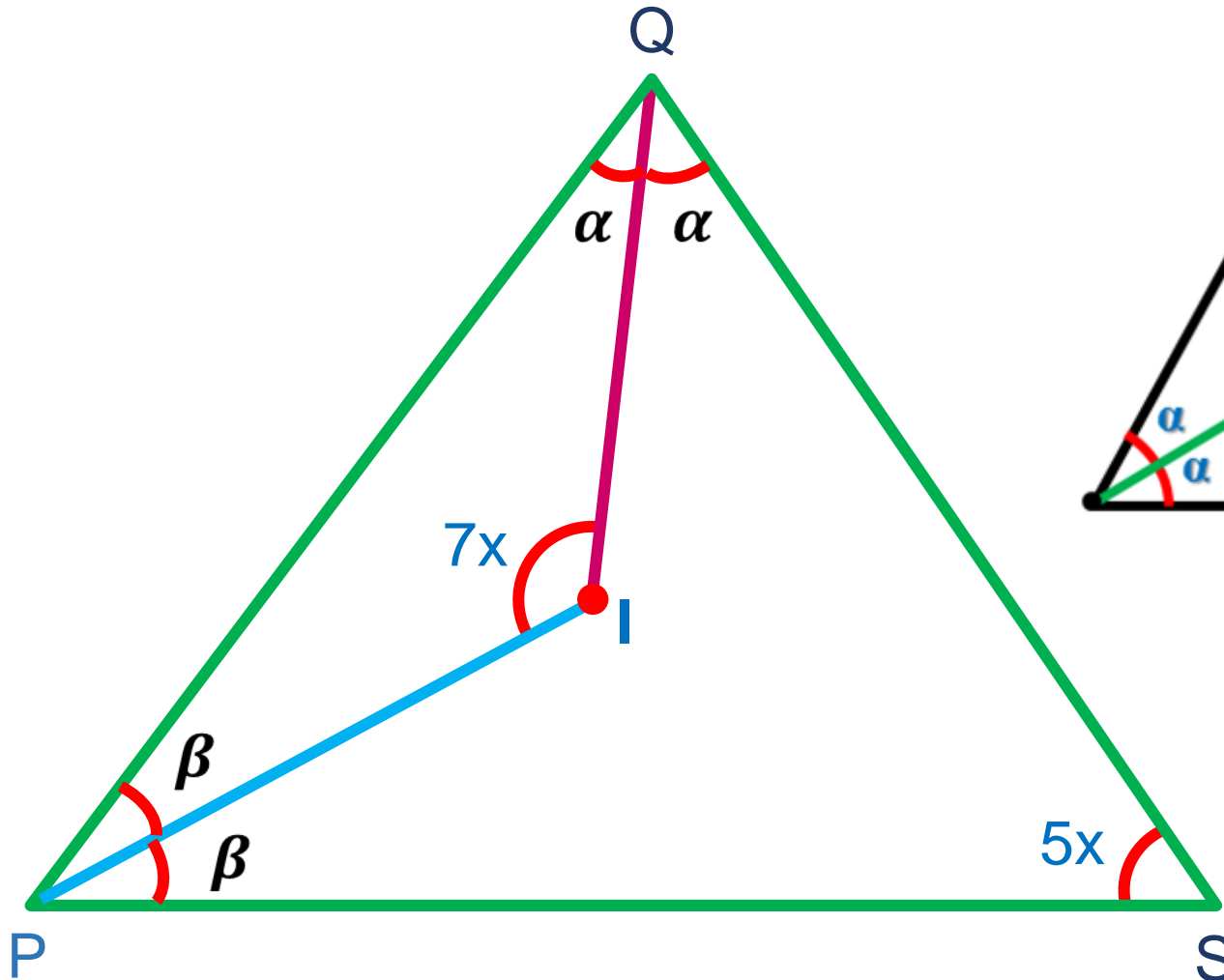
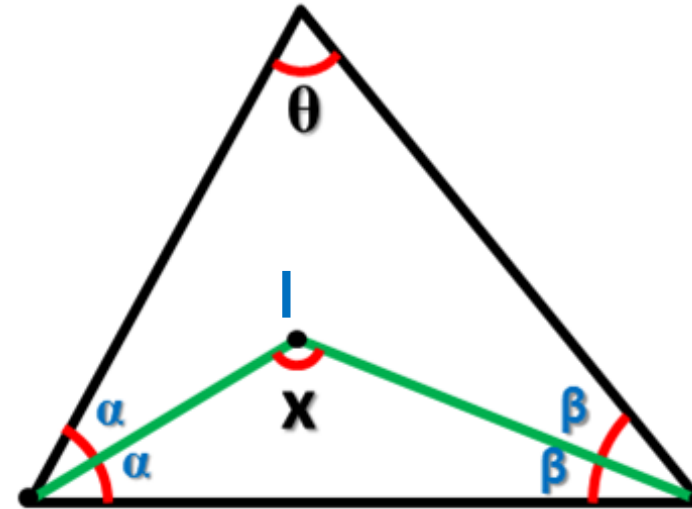


10. En la siguiente figura, halle el valor de  $x$ .

**Resolución**

**I: incentro**

$$x = 90^\circ + \frac{\theta}{2}$$



$$(7x = 90^\circ + \frac{5x}{2}) \times 2$$

$$14x = 180^\circ + 5x$$

$$9x = 180^\circ$$

$$\therefore x = 20^\circ$$