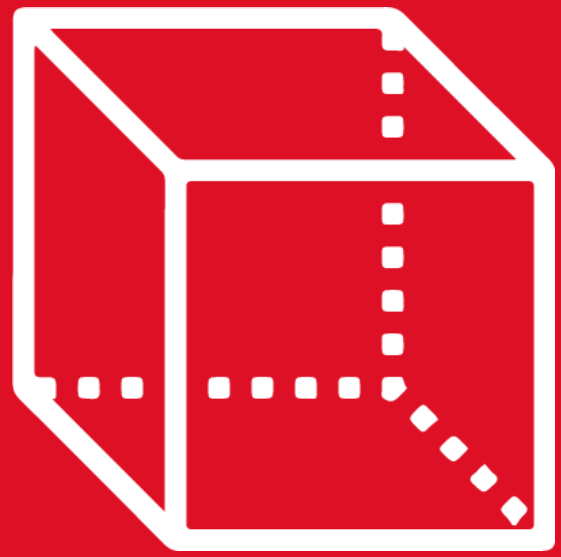
GEOMETRÍA

RETROALIMENTACIÓN



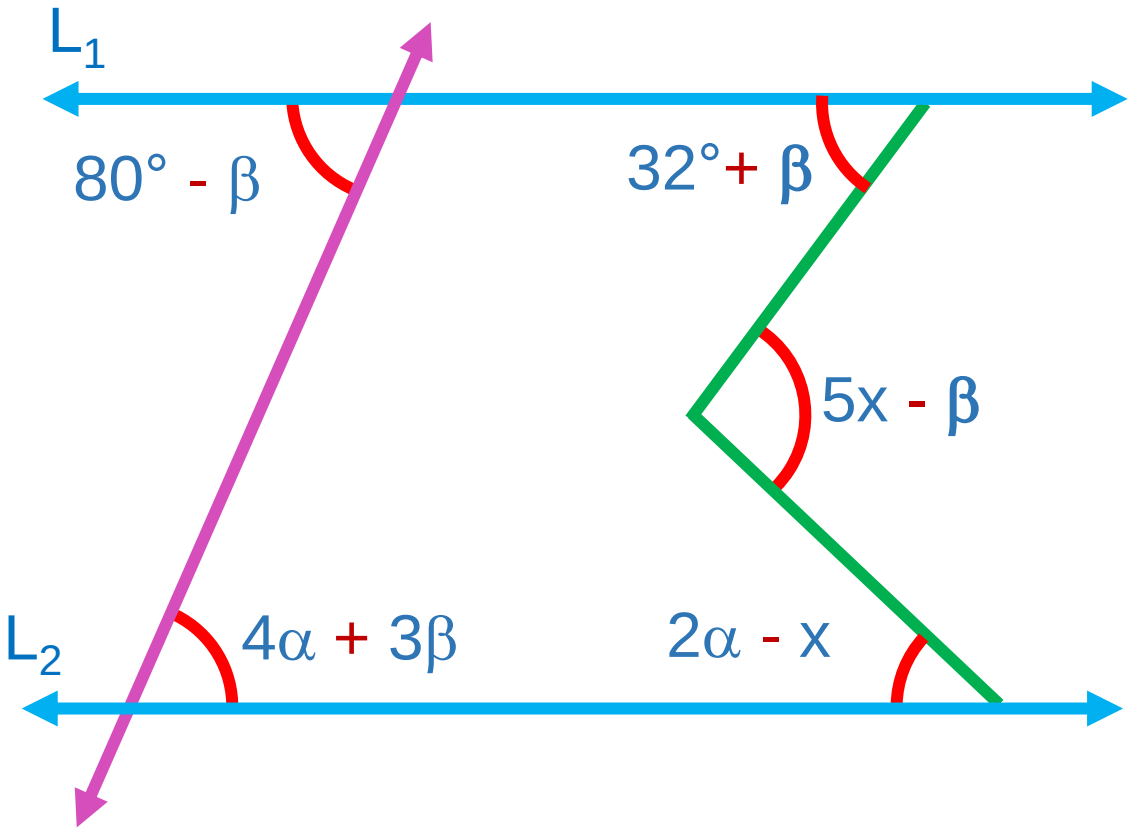
3th

SECONDARY

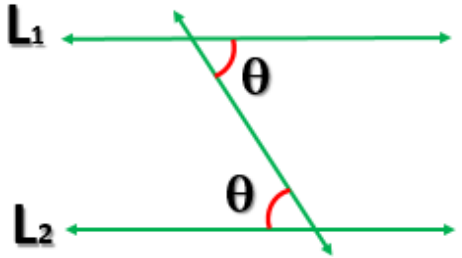
TOMO 2

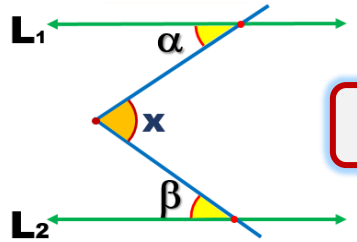
SACO OLIVEROS

1. Si $L_1 // L_2$, halle x.



Ángulos alternos internos





$\alpha + \beta = x$

- $80° - \beta = 4\alpha + 3\beta$

$80° = 4\alpha + 4\beta$

$20° = \alpha + \beta$

- $5x - \beta = 2\alpha - x + 32° + \beta$

$6x = 2\alpha + 2\beta + 32°$

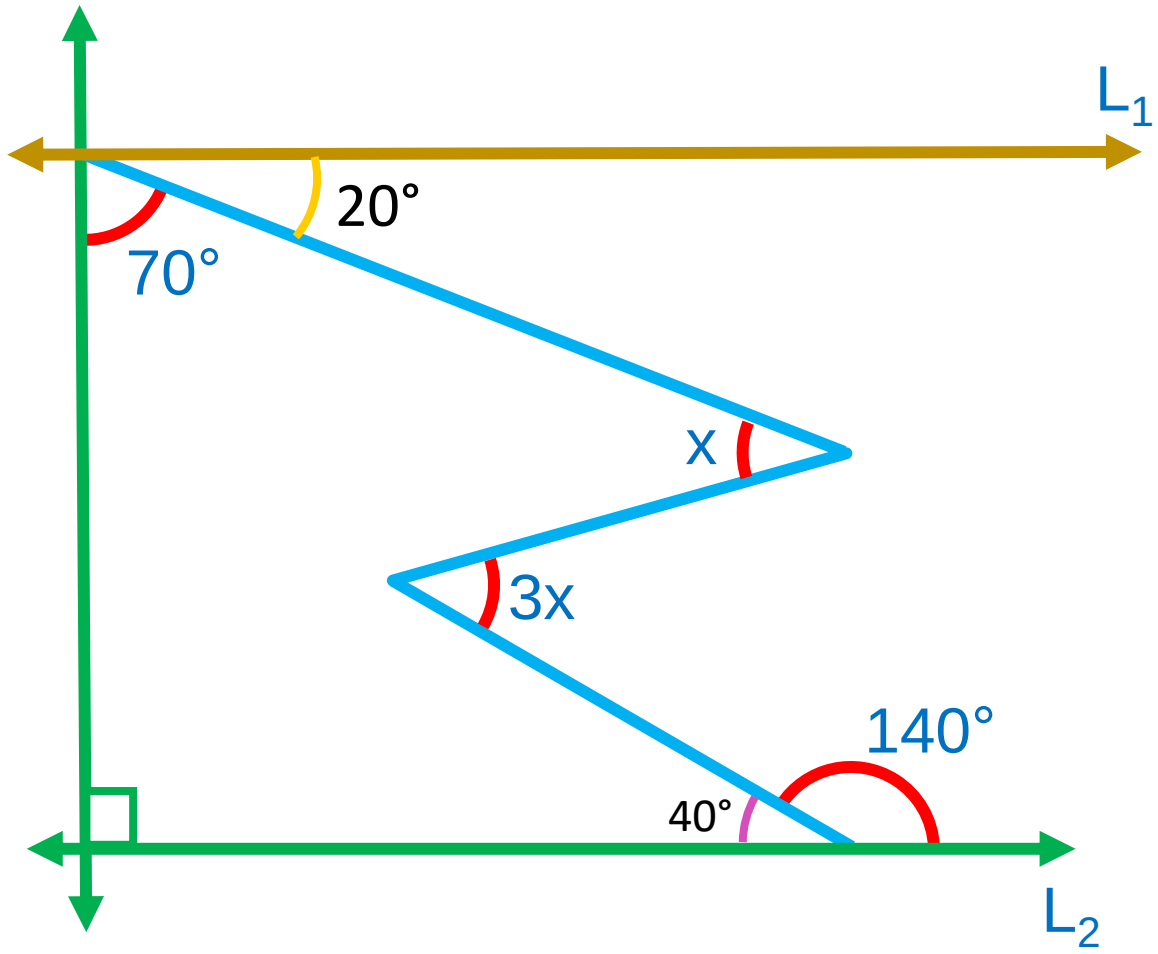
$6x = 2(\alpha + \beta) + 32°$

$6x = 2(20°) + 32°$

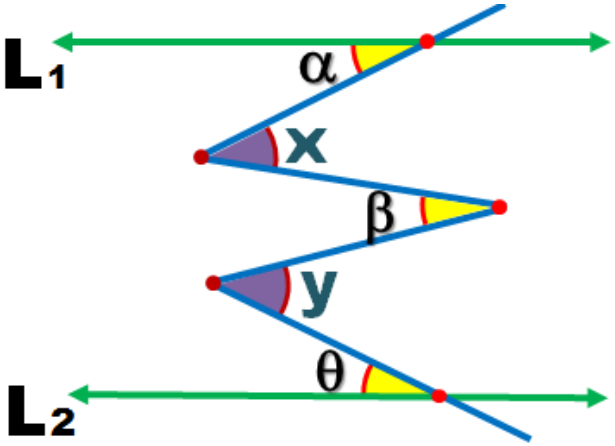
$6x = 72°$

$\therefore x = 12°$

2. Halle el valor de *x*.



Resolución



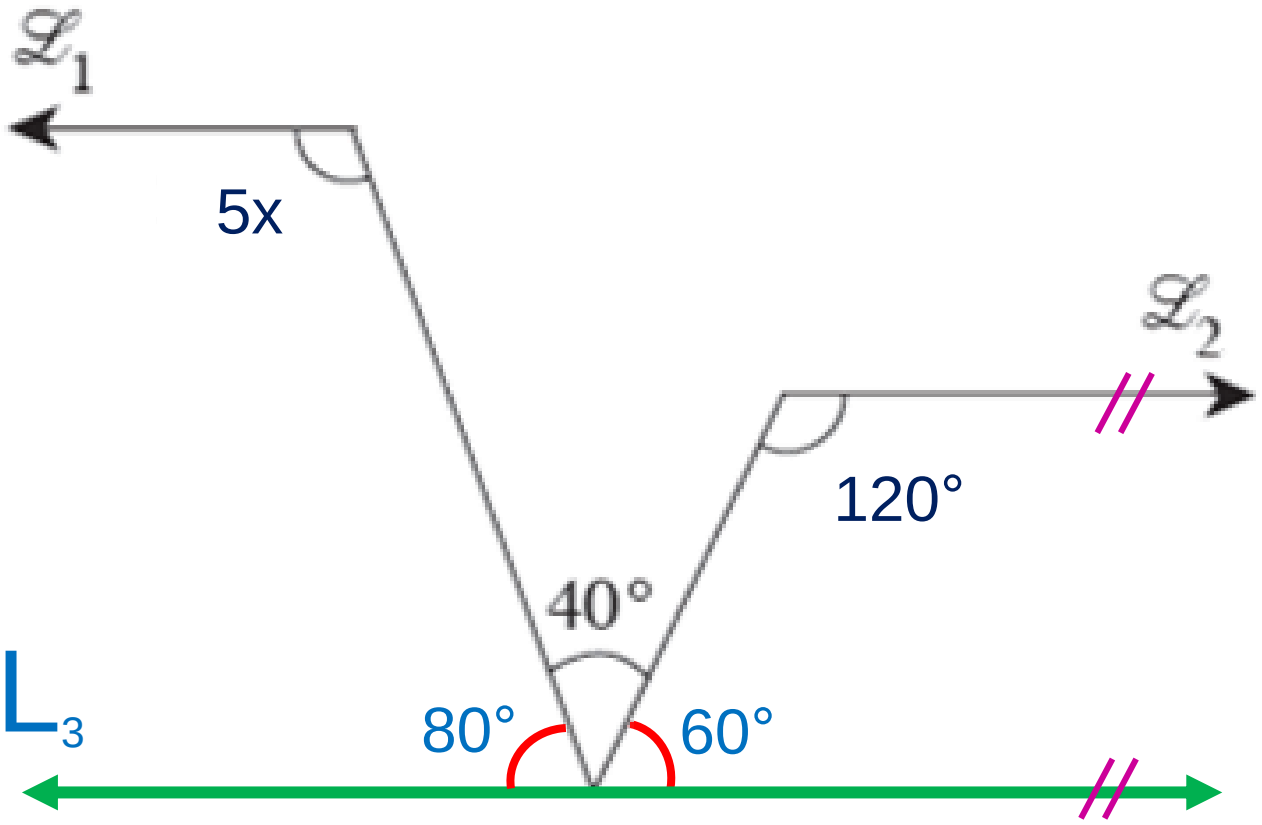
$x+y = \alpha+\beta+\theta$

$20° + 3x = x + 40°$

$2x = 20°$

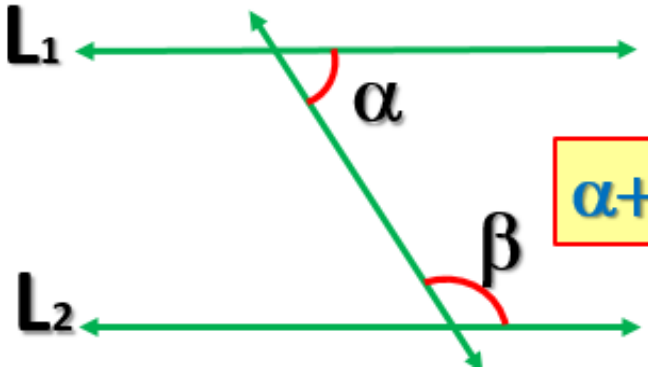
$\therefore x = 10°$

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



Resolución

Ángulos conjugados



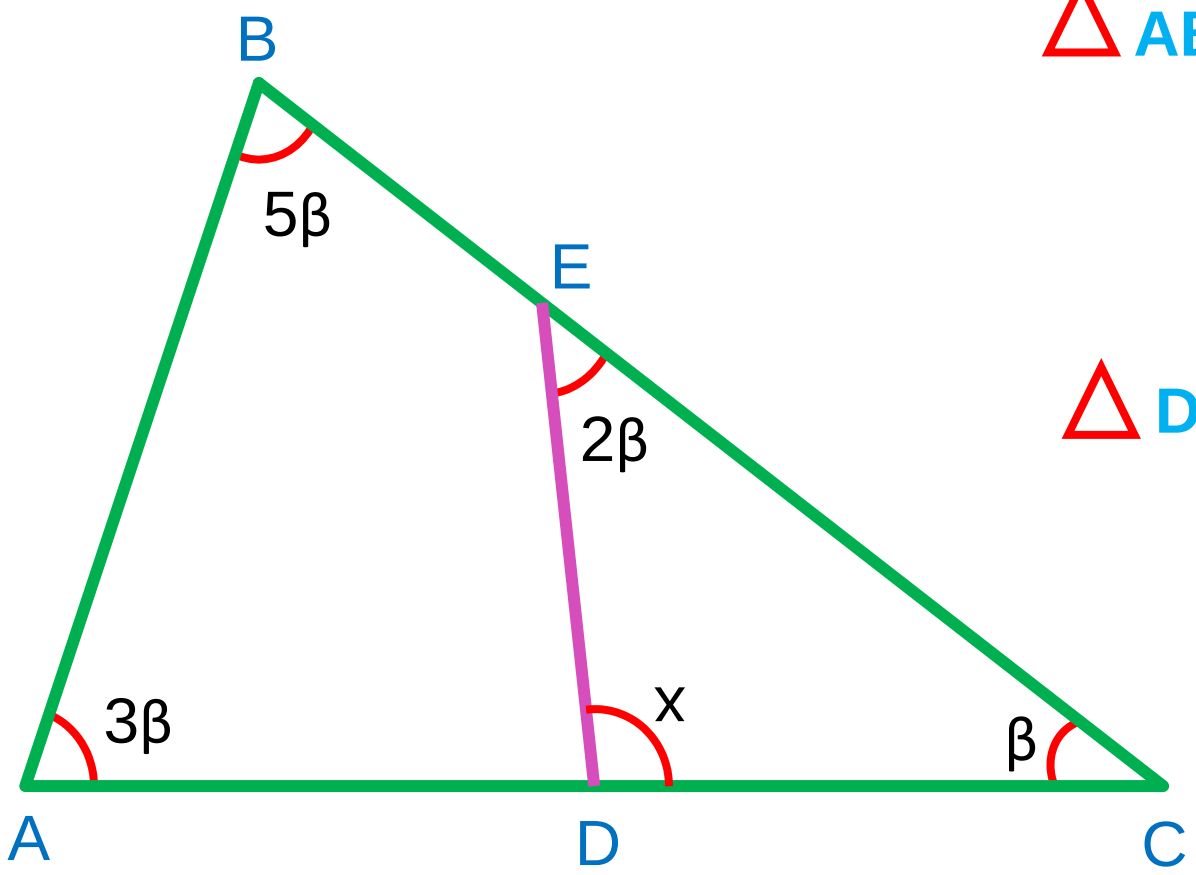
$\alpha+\beta=180°$

$5x + 80° = 180°$

$5x = 100°$

∴ x = 20°

4. Halle el valor de x.



$\triangle ABC$: $3\beta + 5\beta + \beta = 180°$

$9\beta = 180°$

$\beta = 20°$

$\triangle DEC$: $x + 2\beta + \beta = 180°$

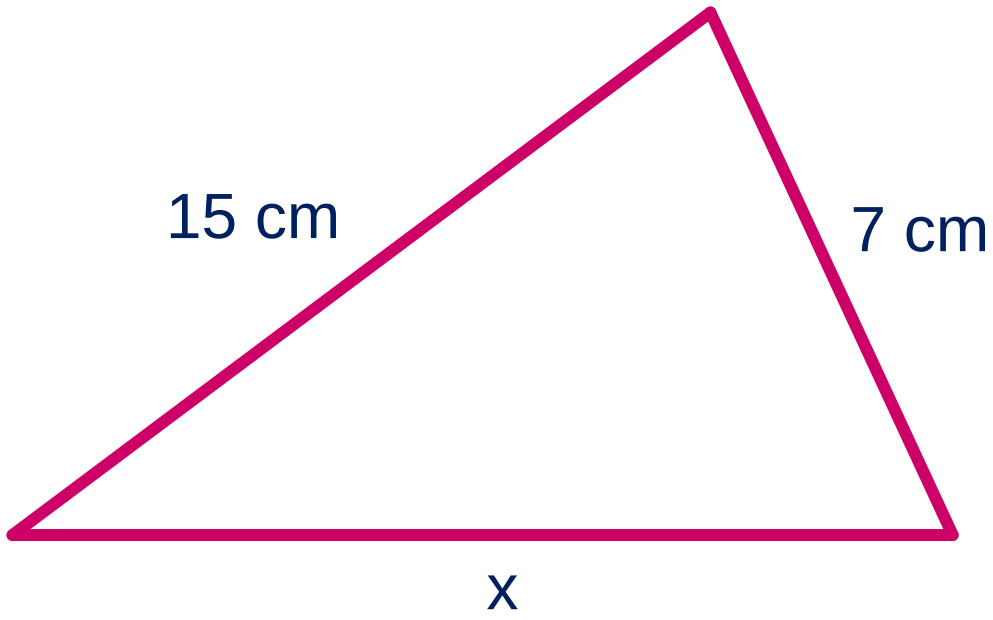
$x + 3\beta = 180°$

$x + 3(20°) = 180°$

$\therefore x = 120°$

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 :

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

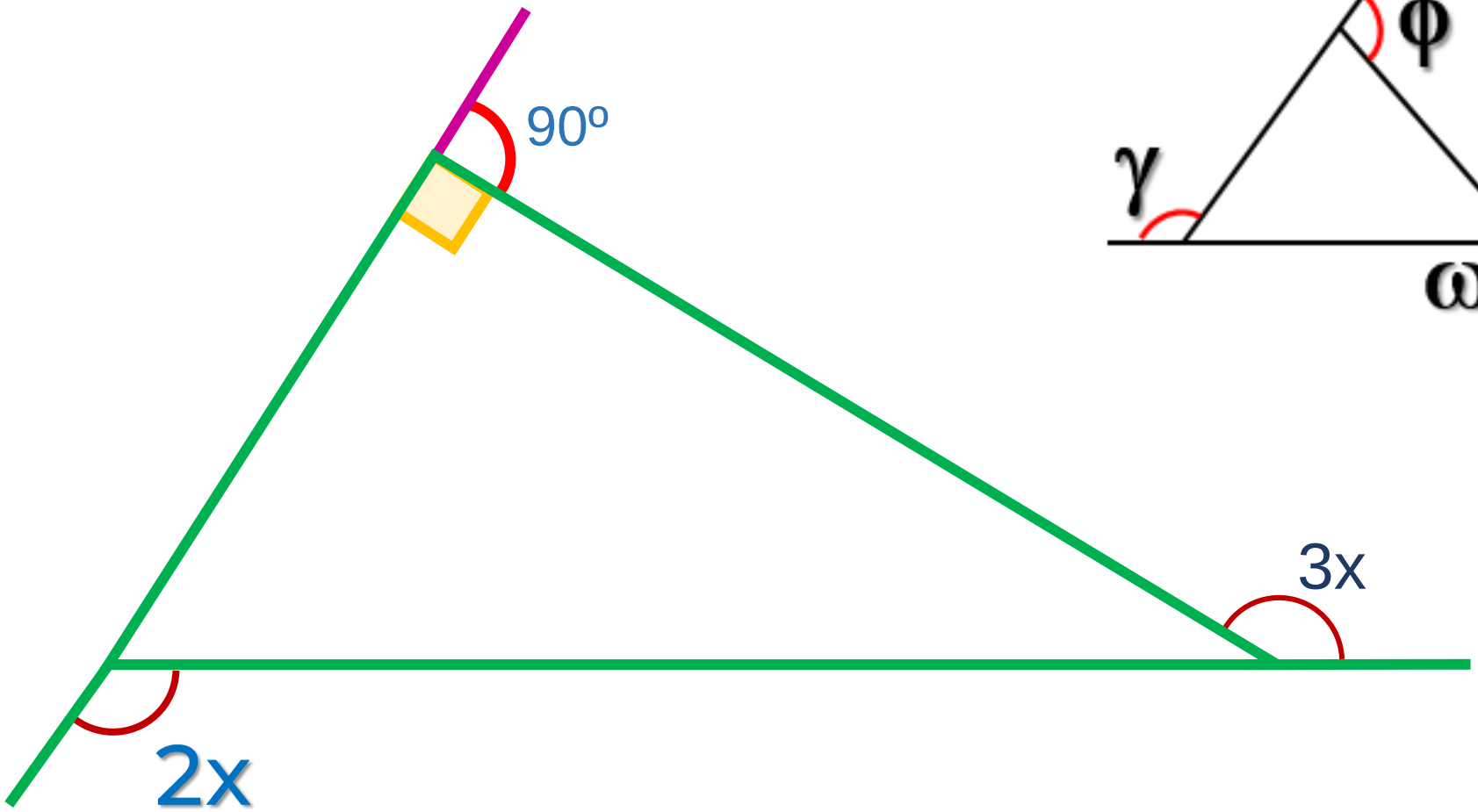
$$8 < x < 22$$

$$x_{mín} + x_{máx}$$

$$9 + 21$$

$$\therefore X_{mín} + X_{máx} = 30$$

6. Halle el valor de *x*.



Resolución

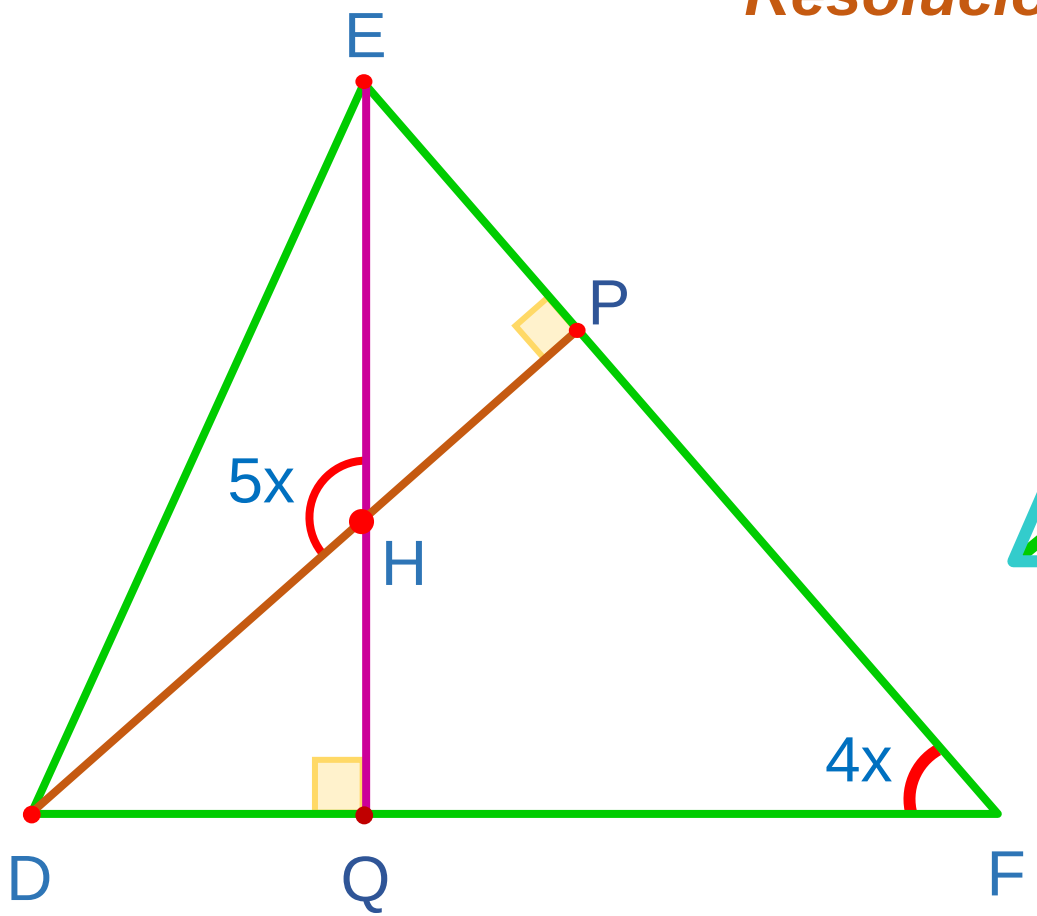
$$\omega + \phi + \gamma = 360°$$

$$3x + 2x + 90° = 360°$$

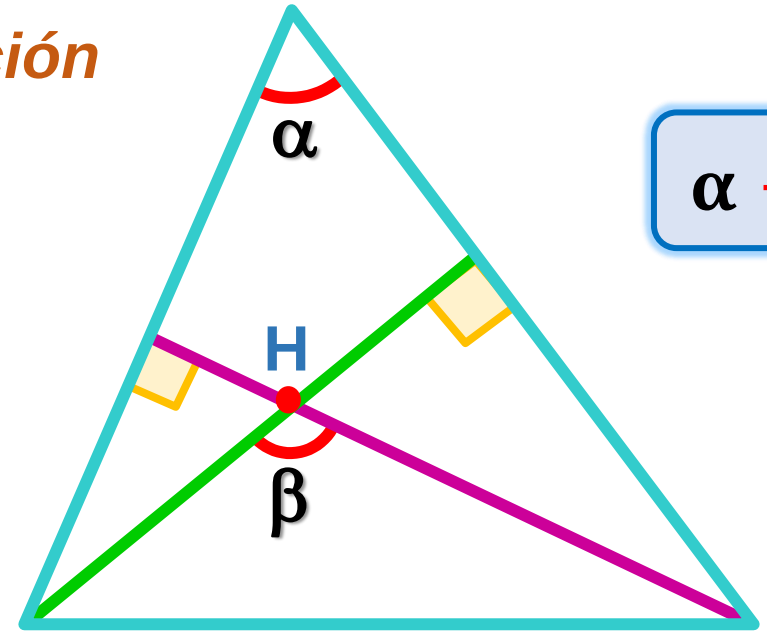
$$5x = 270°$$

$$\therefore x = 54°$$

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



Resolución



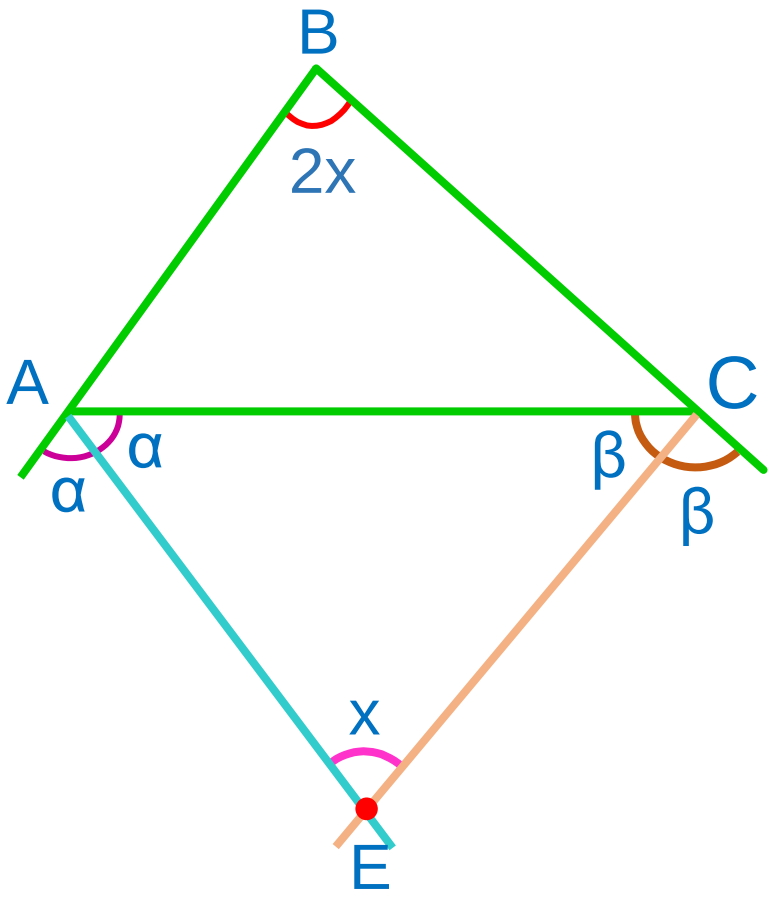
$\alpha + \beta = 180°$

$5x + 4x = 180°$

$9x = 180°$

$\therefore x = 20°$

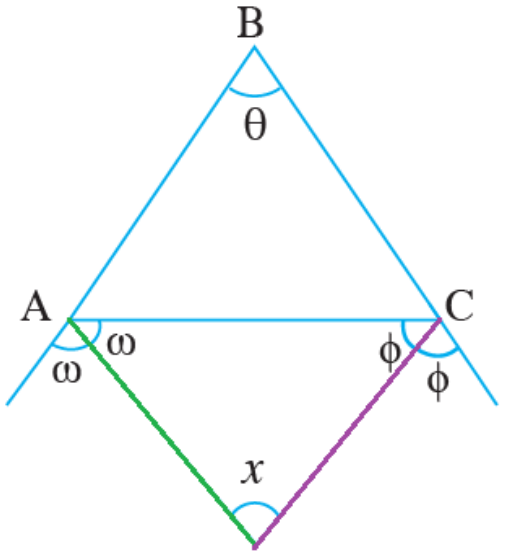
8. En un triángulo ABC, las bisectrices exteriores de los ángulos A y C, se intersecan en E. Si m∢ABC = 2x y m∢AEC = x, halle el valor de x.



Resolución

En el gráfico se cumple

$$x = 90° - \frac{\theta}{2}$$

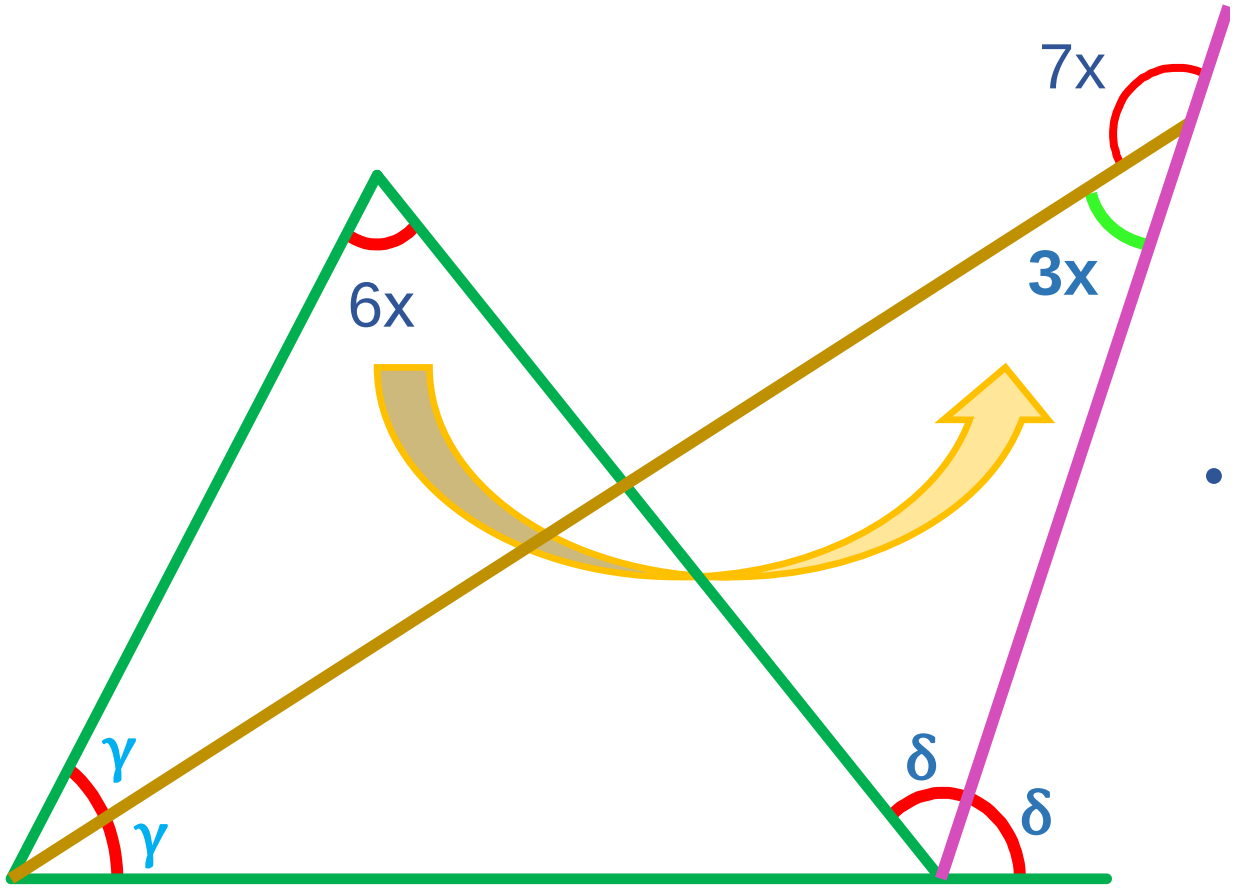


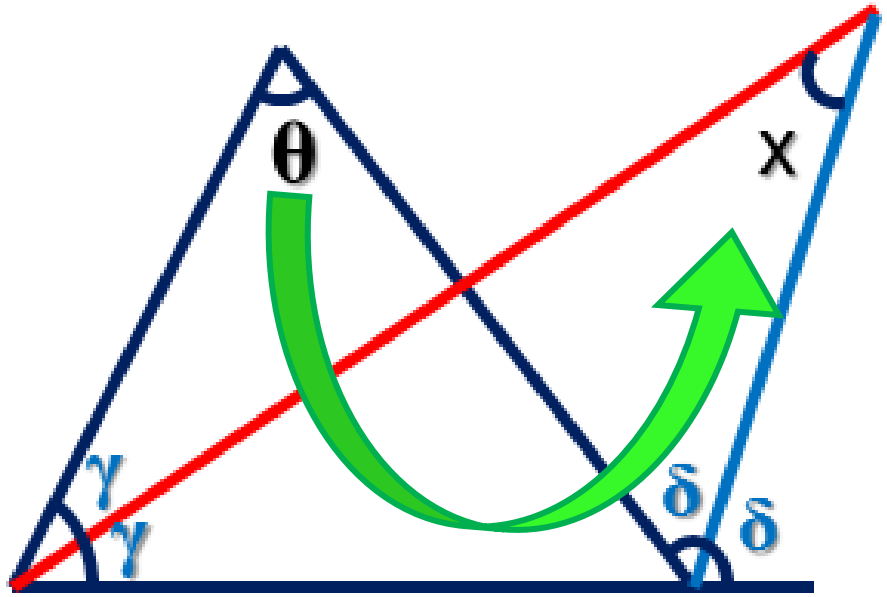
Entonces:

$$x = 90° - \frac{2x}{2} \Rightarrow x = 90° - x$$

∴ x = 45°

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





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

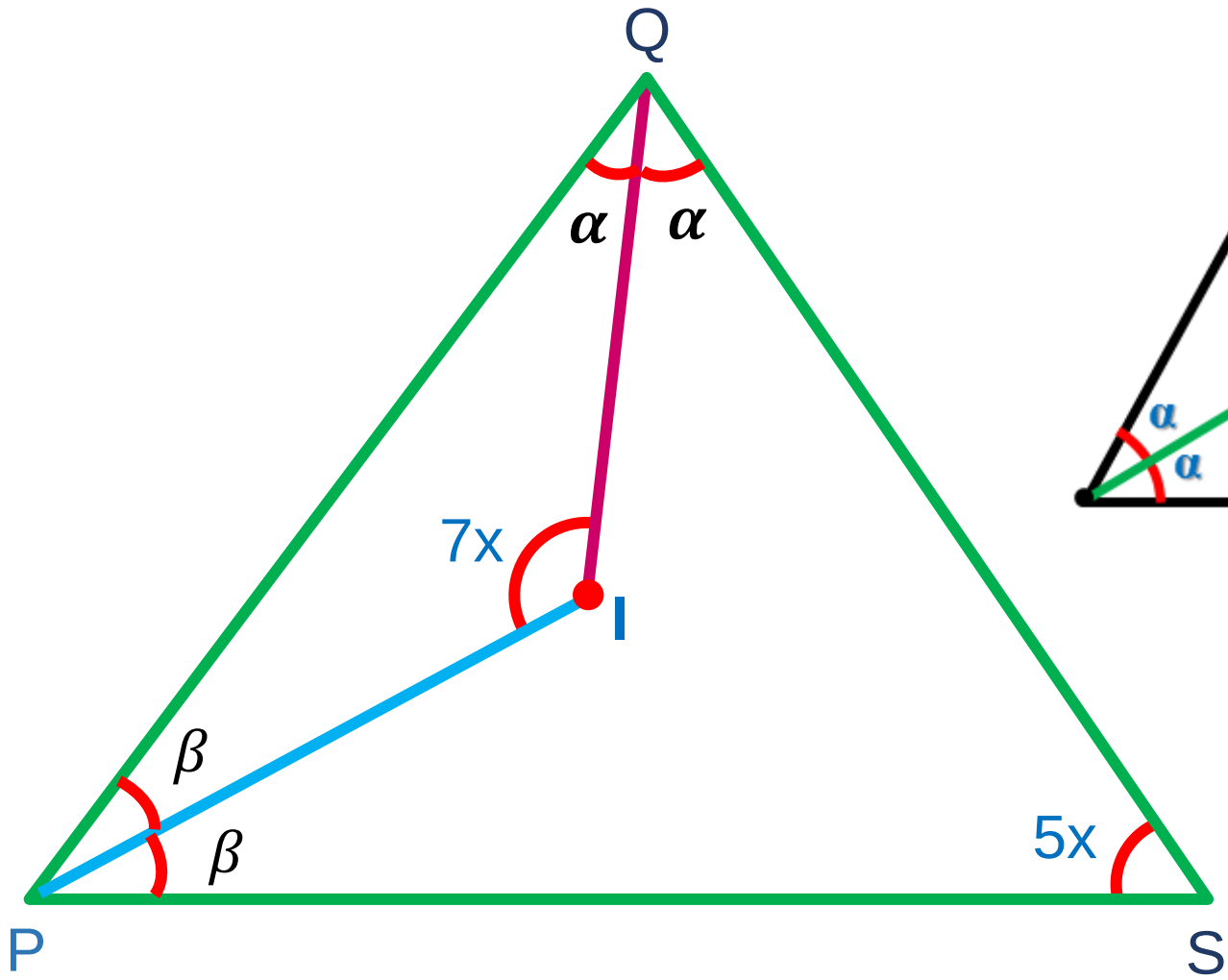
- Del gráfico:

$$7x + 3x = 180°$$

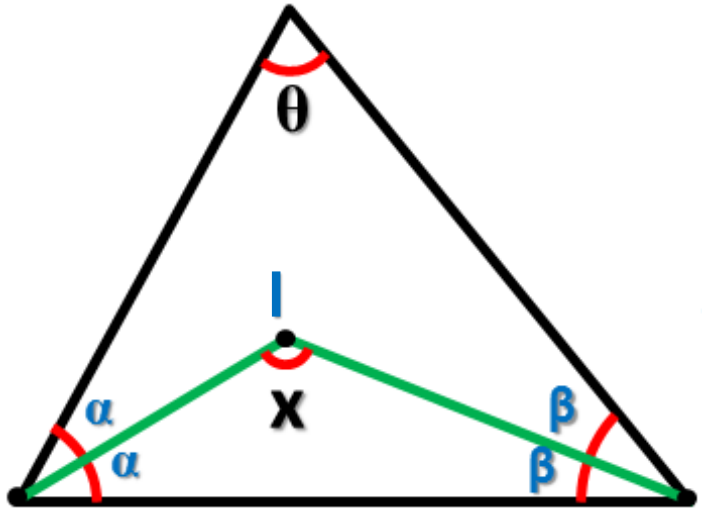
$$10x = 180°$$

$$\therefore x = 18°$$

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



Resolución



I: incentro

$$X = 90° + \frac{\theta}{2}$$

$$\left(7x = 90^{o} + \frac{5x}{2}\right) x2$$

$$14x = 180° + 5x$$

$$9x = 180°$$

$$\therefore x = 20°$$