



GEOMETRÍA

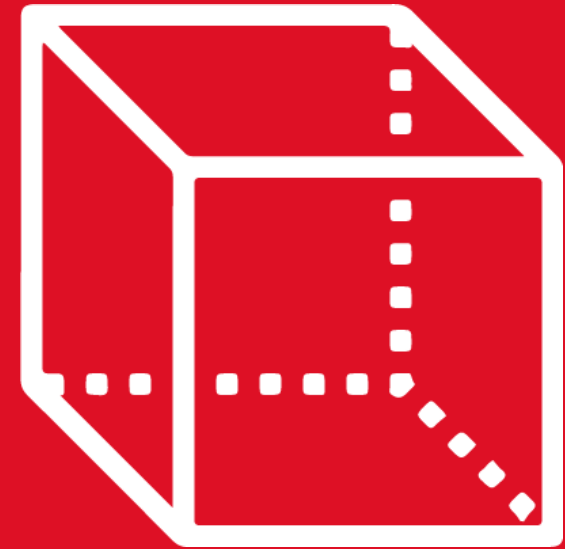
Capítulo 4

Sesión 1

3th

SECONDARY

RECTAS PARALELAS



 **SACO OLIVEROS**

MOTIVATING | STRATEGY



ÁNGULOS ENTRE DOS RECTAS PARALELAS Y UNA SECANTE

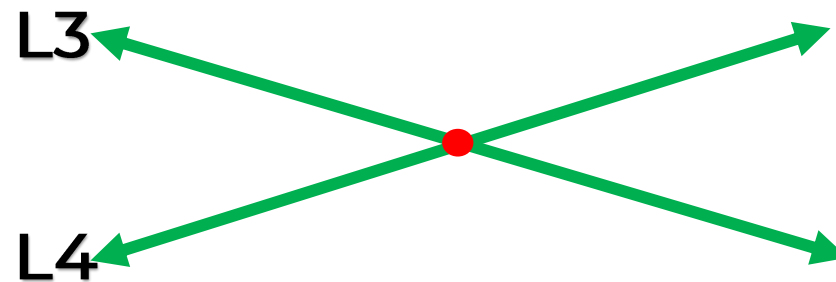
RECTAS PARALELAS : Son aquellas rectas copanales que no tienen ningún punto en común.

Rectas paralelas

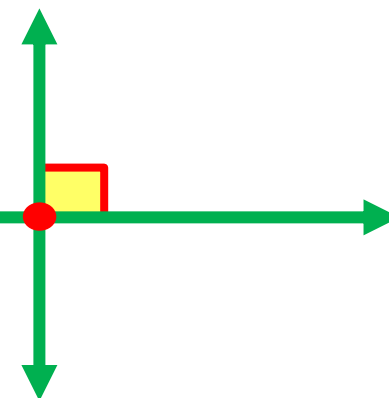


$L1 \parallel L2$

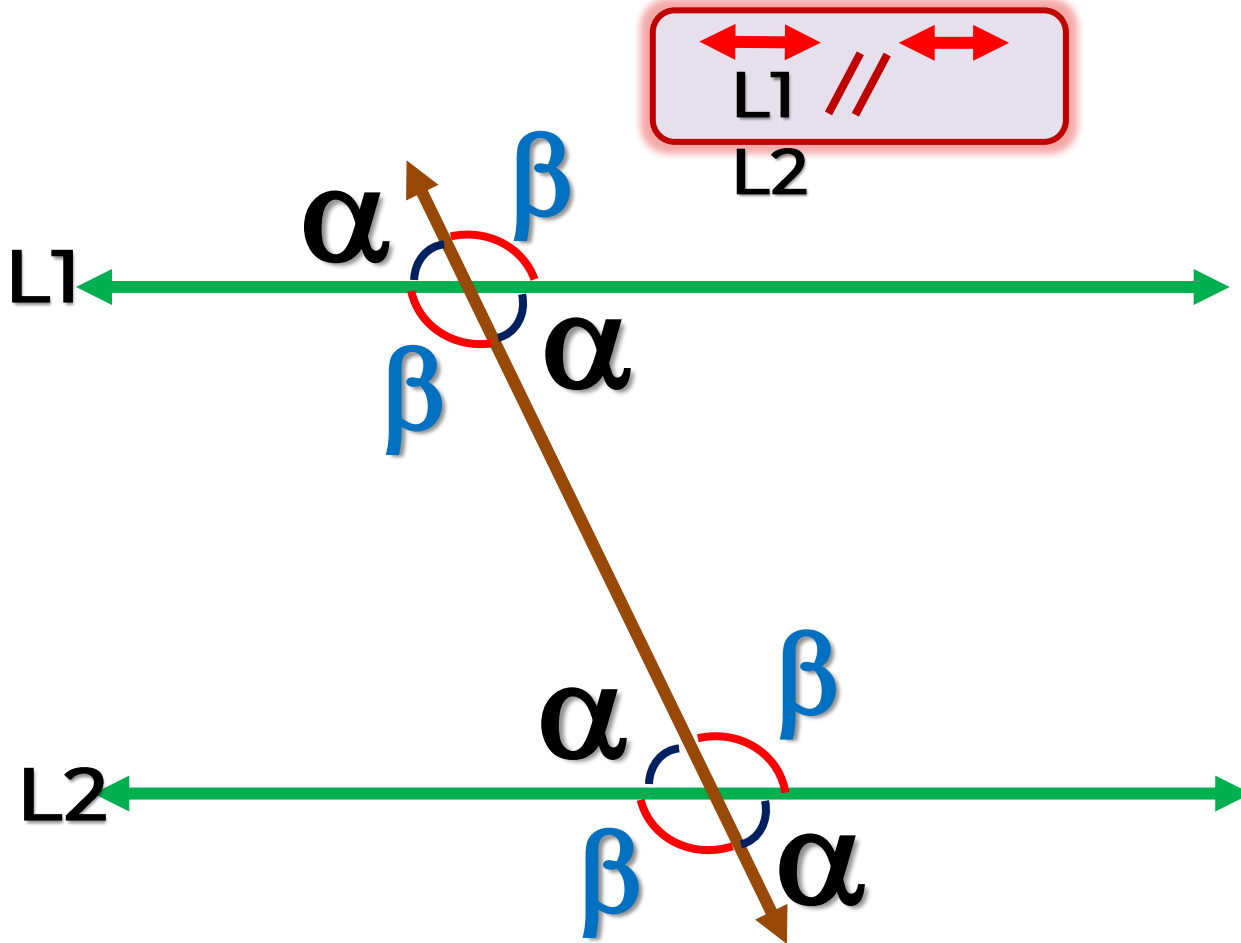
Rectas Secantes



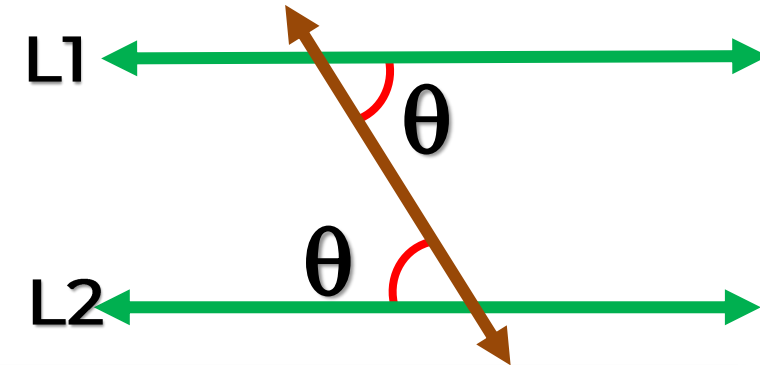
Rectas Perpendiculares



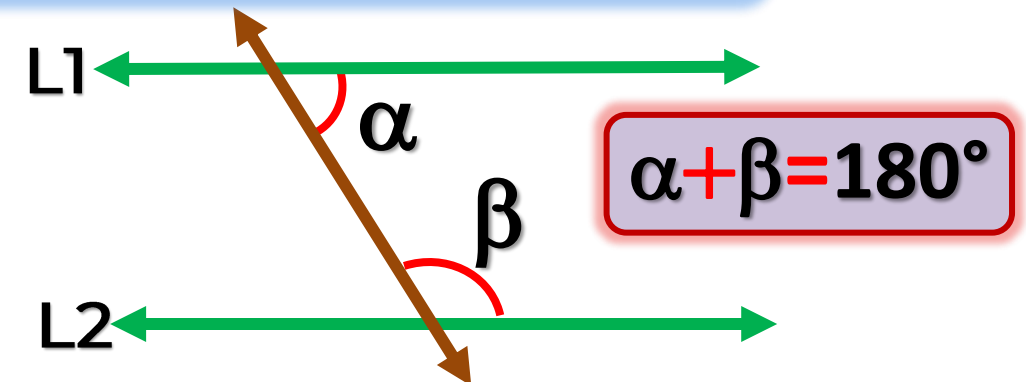
ÁNGULOS FORMADOS POR DOS RECTAS PARALELAS Y UNA SECANTE



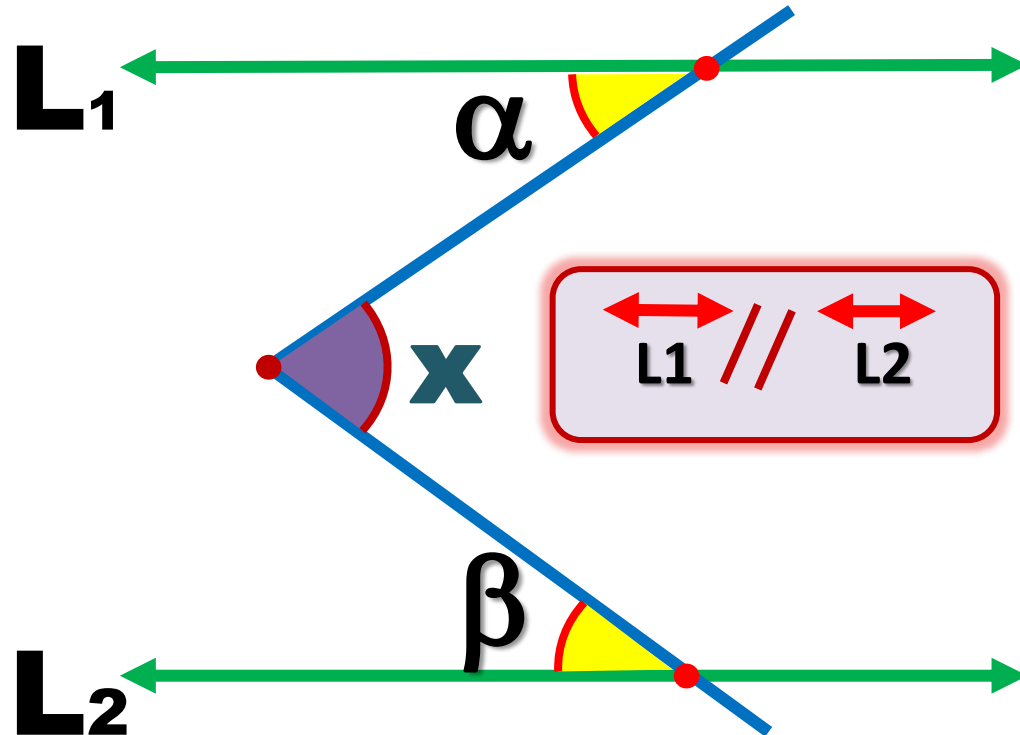
ÁNGULOS ALTERNOS INTERNOS



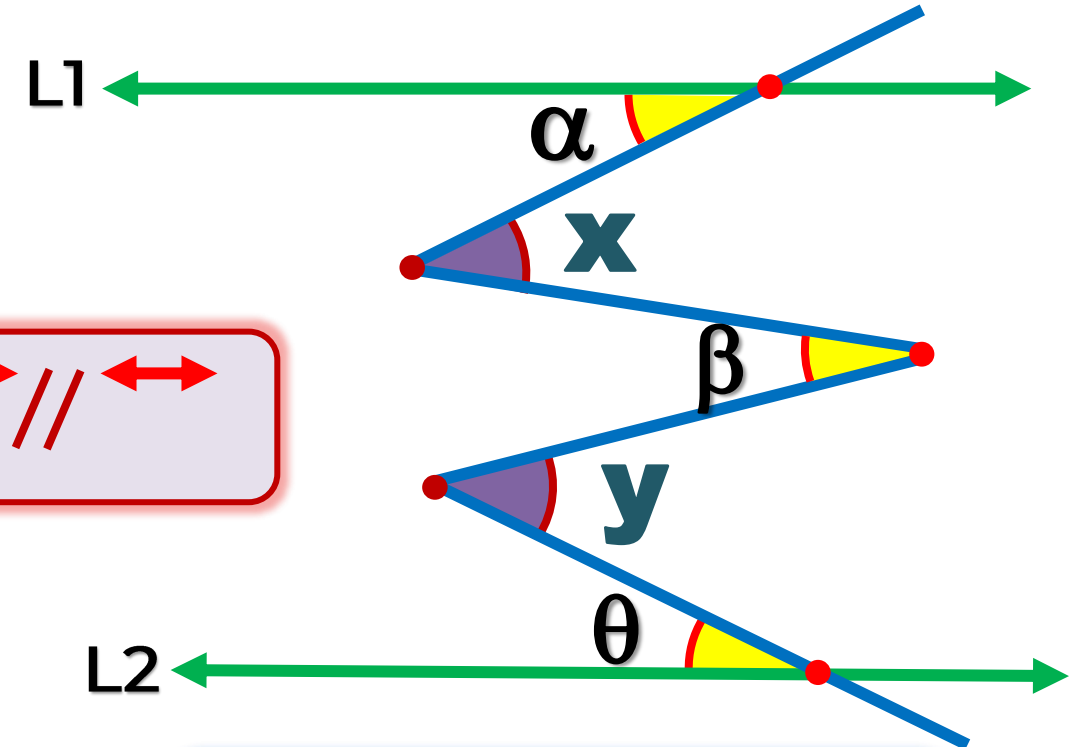
ÁNGULOS CONJUGADOS



TEOREMAS



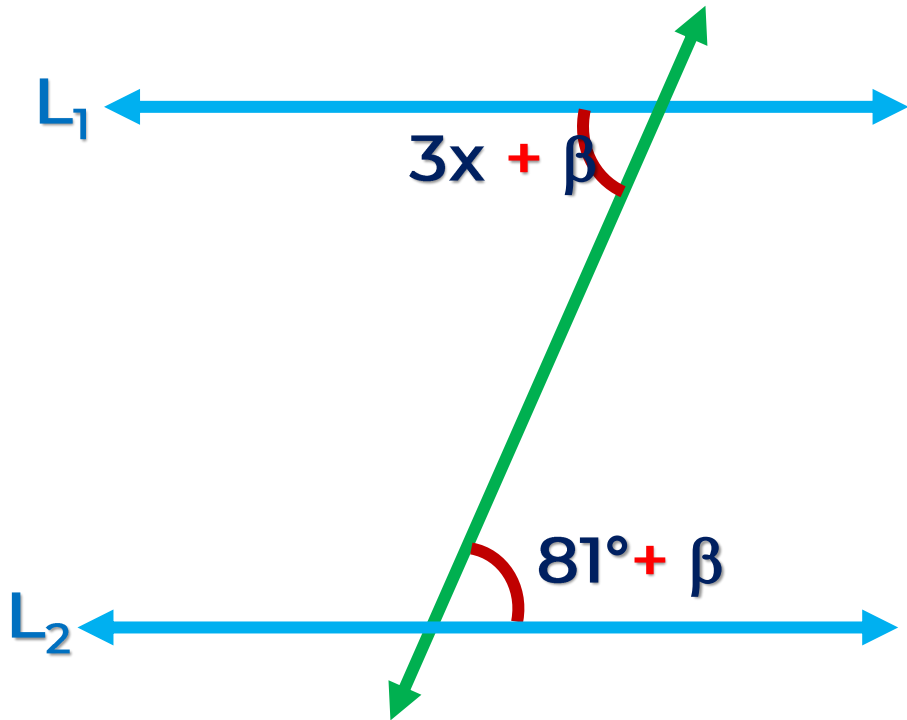
$$x = \alpha + \beta$$



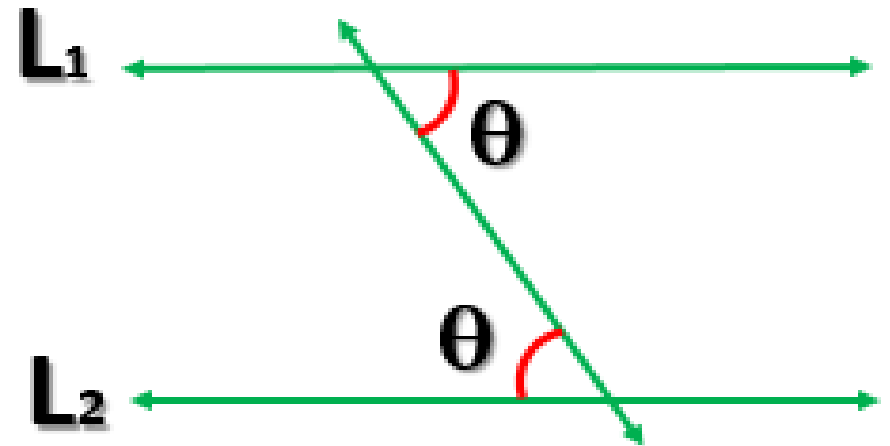
$$x + y = \alpha + \beta + \theta$$



1. Sean dos rectas paralelas L_1 y L_2 , que intersecadas por una recta secante forman los ángulos alternos internos $3x + \beta$ y $81^\circ + \beta$, halle el valor de x .



Ángulos alternos internos

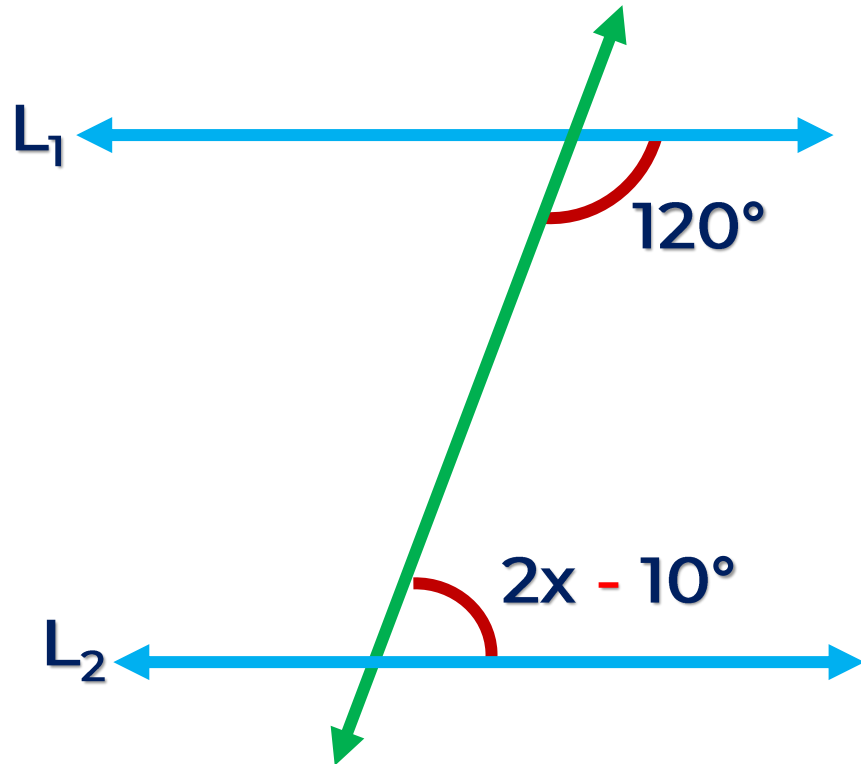


$$\begin{aligned} \Rightarrow 3x + \cancel{\beta} &= 81^\circ + \cancel{\beta} \\ \beta &\quad 3x = 81^\circ \end{aligned}$$

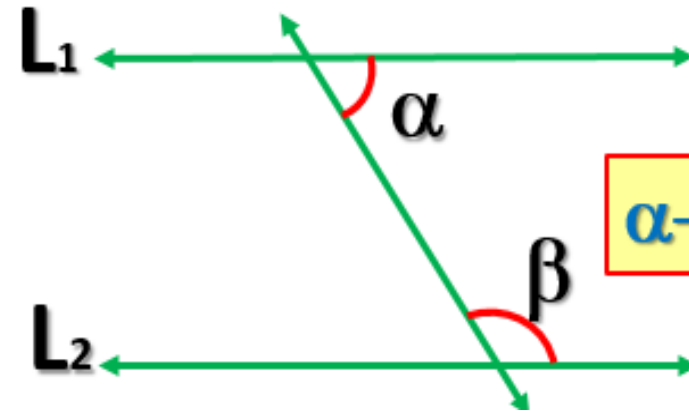
$$x = 27^\circ$$



2. Dados dos rectas paralelas y una recta secante forman los ángulos internos a un mismo lado de la recta secante que miden 120° y $2x - 10^\circ$, halle el valor de x .



Ángulos conjugados



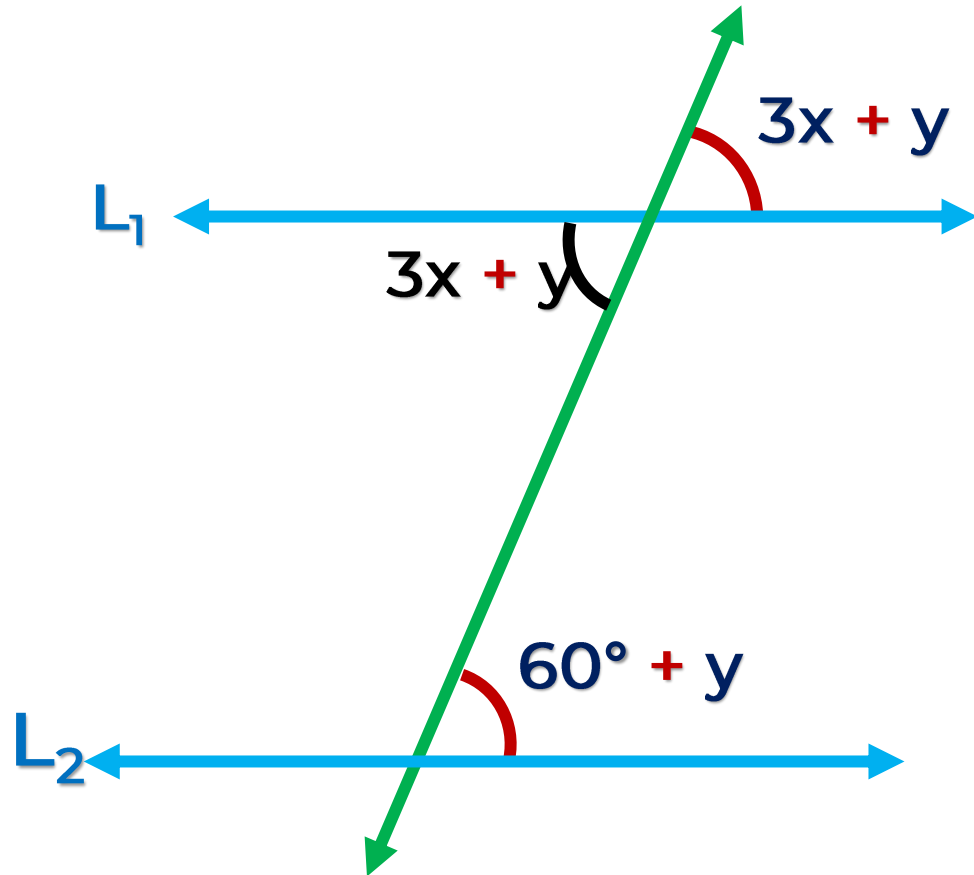
$$\alpha + \beta = 180^\circ$$

$$\begin{aligned} \Rightarrow 2x - 10^\circ + 120^\circ &= 180^\circ \\ 2x &= 70^\circ \end{aligned}$$

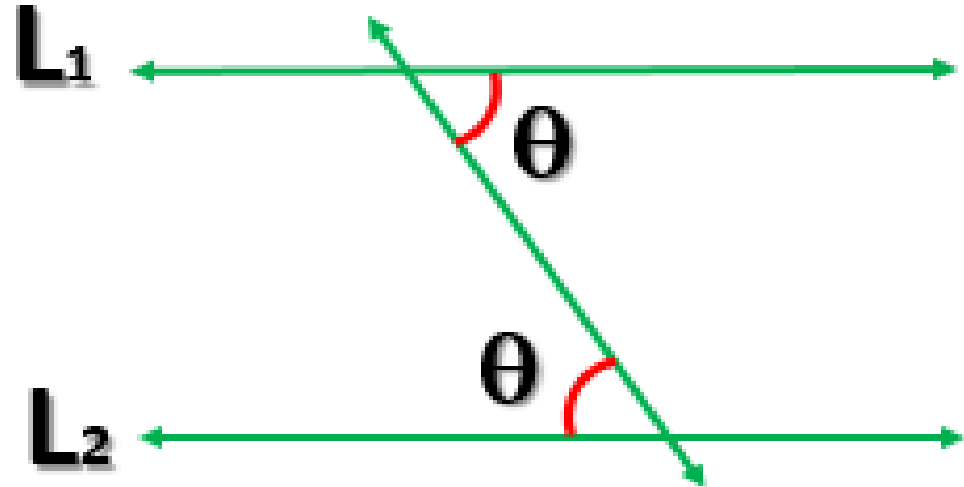
$$x = 35^\circ$$



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



Ángulos alternos internos

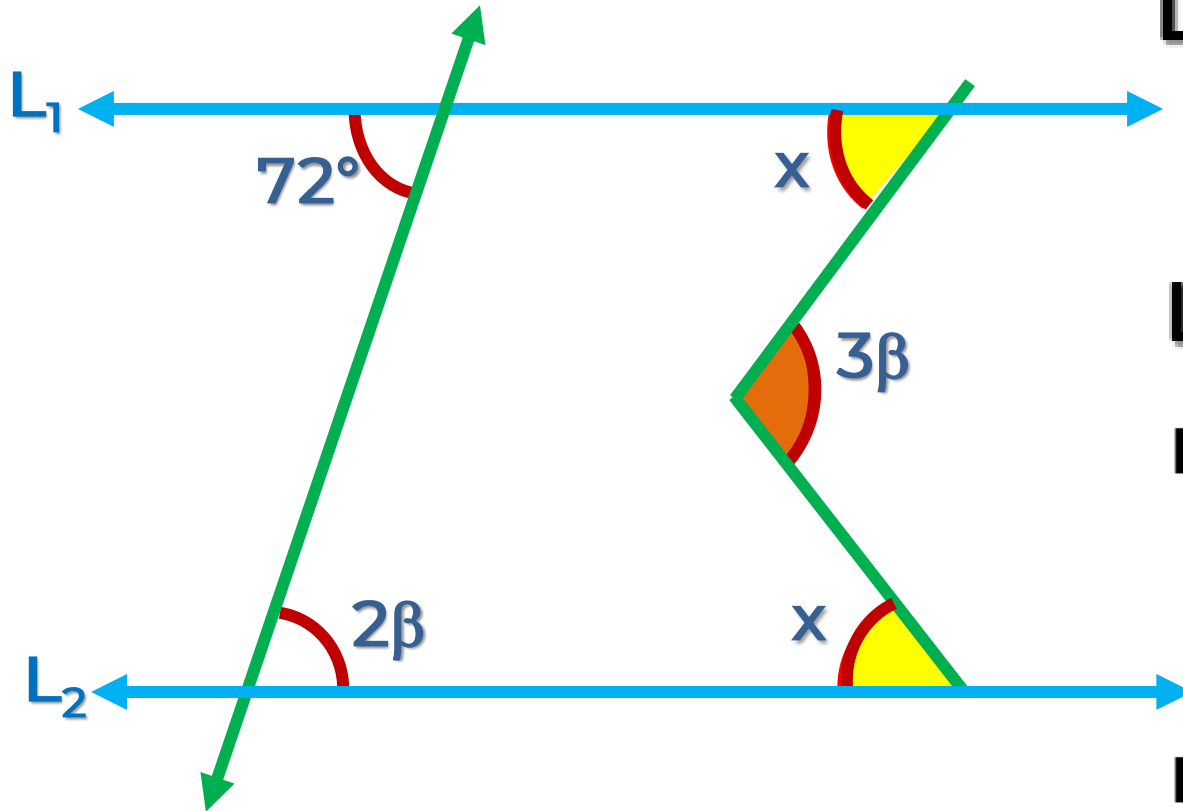


$\Rightarrow 3x + y = 60^\circ + y$
 $3x = 60^\circ$

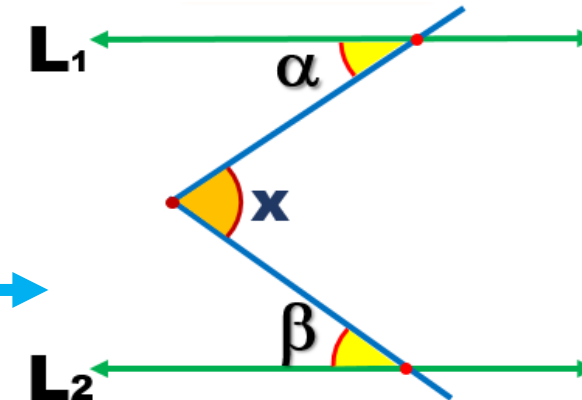
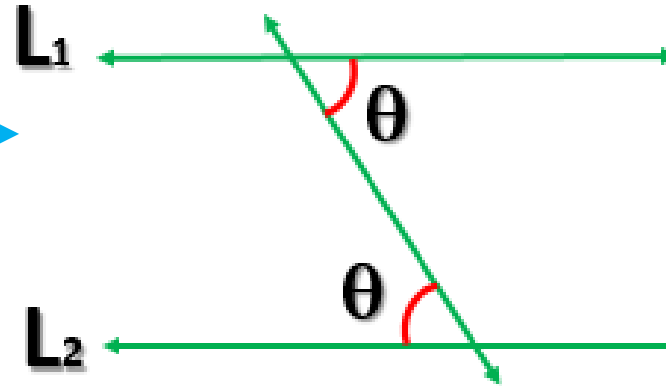
$x = 20^\circ$



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



Ángulos alternos internos



$$\alpha + \beta =$$

x

$$2\beta = 72^\circ$$

$$\beta = 36^\circ$$

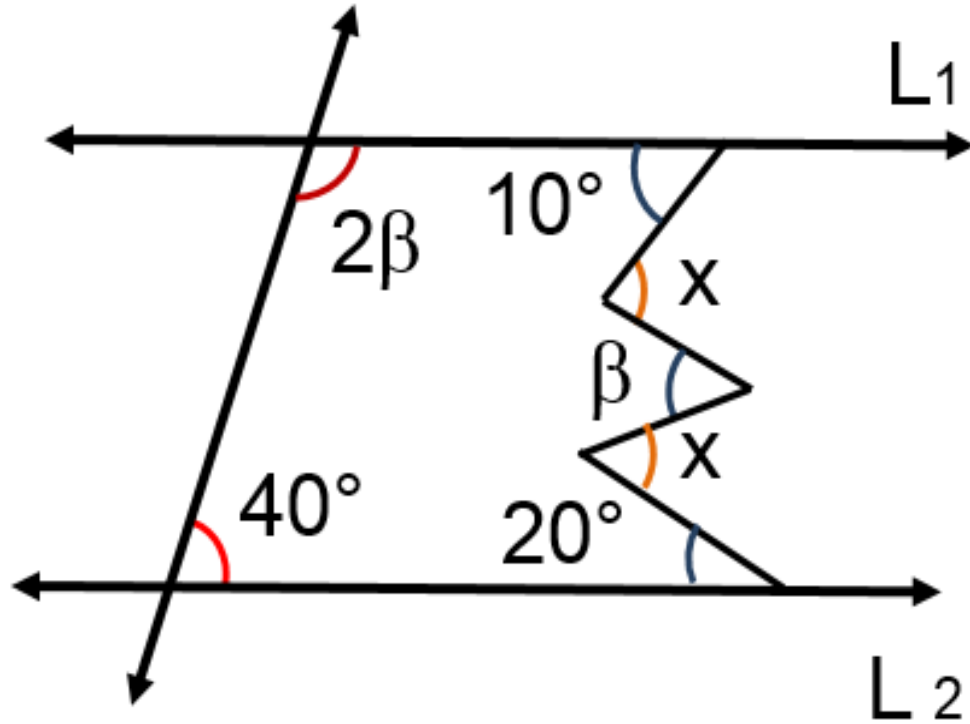
$$x + x = 3\beta$$

$$2x = 3(36^\circ)$$

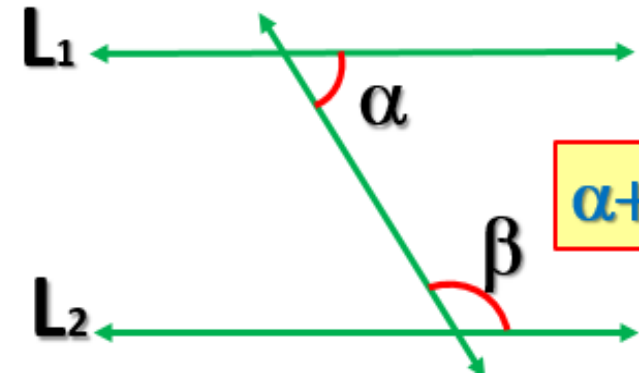
$$x = 3(18^\circ)$$

$$x = 54^\circ$$

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

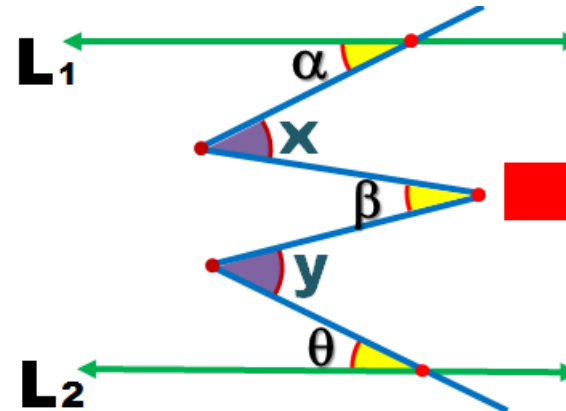


Ángulos conjugados



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

$$\begin{aligned} 2\beta + 40^\circ &= 180^\circ \\ 2\beta &= 140^\circ \\ \beta &= 70^\circ \end{aligned}$$



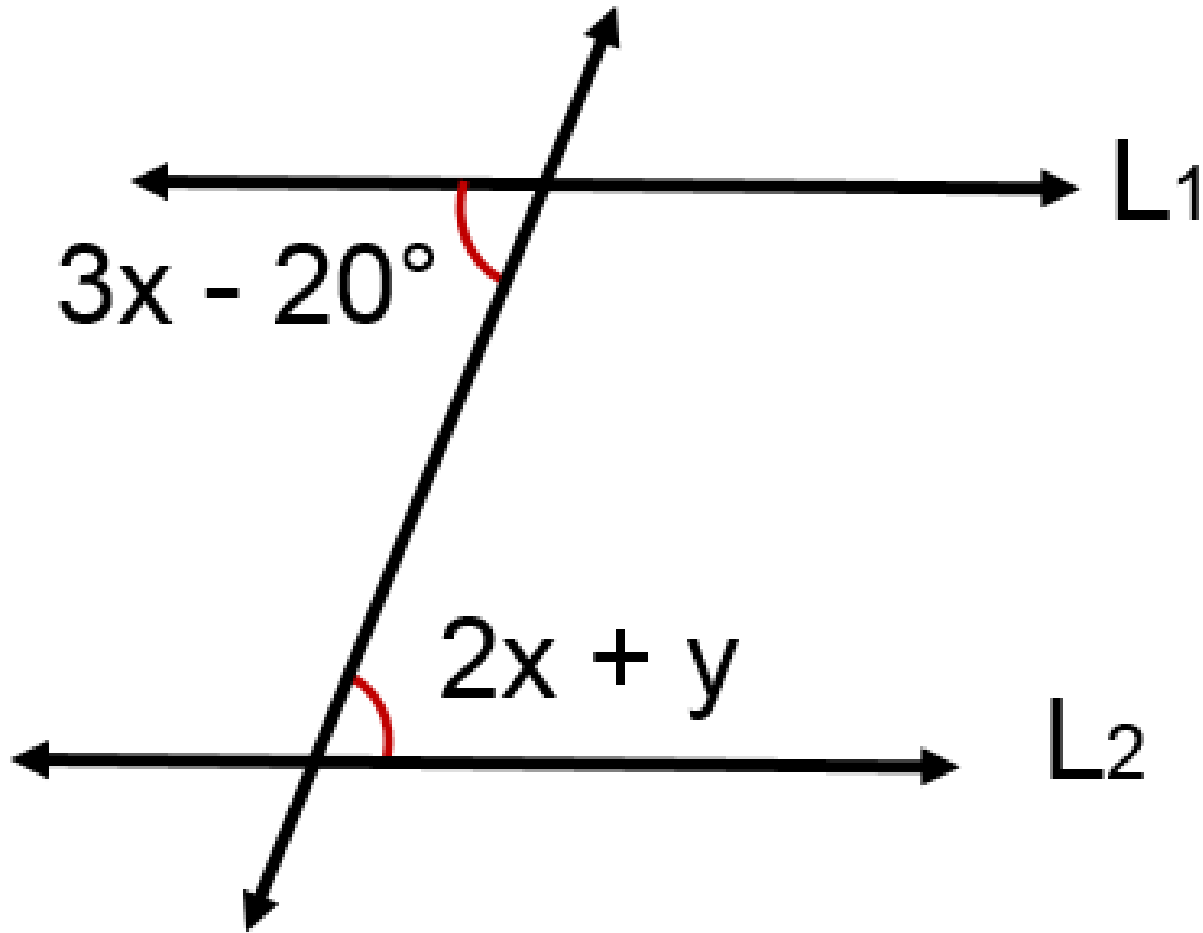
$$x + y = \alpha + \beta + \theta$$

$$\begin{aligned} x &= 10^\circ + 70^\circ + 20^\circ \\ 2x &= 100^\circ \end{aligned}$$

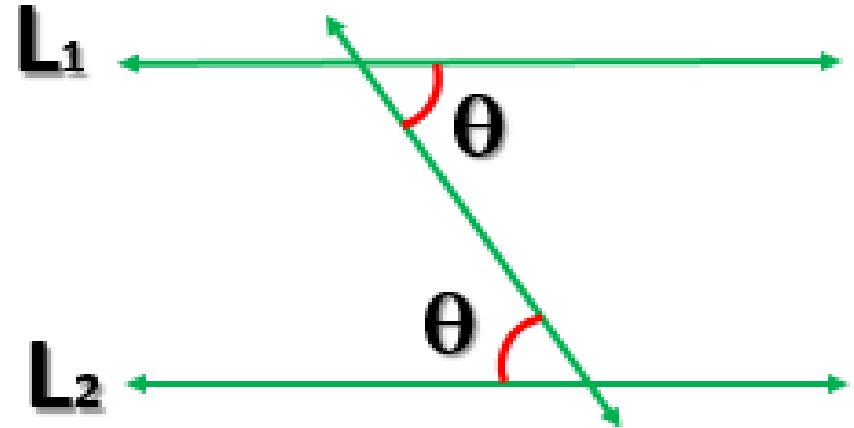
$$x = 50^\circ$$



6. Si $L_1 \parallel L_2$, halle el valor de $x - y$.



Ángulos alternos internos

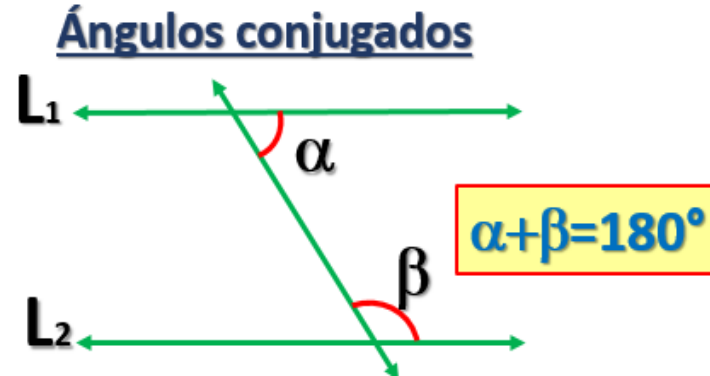
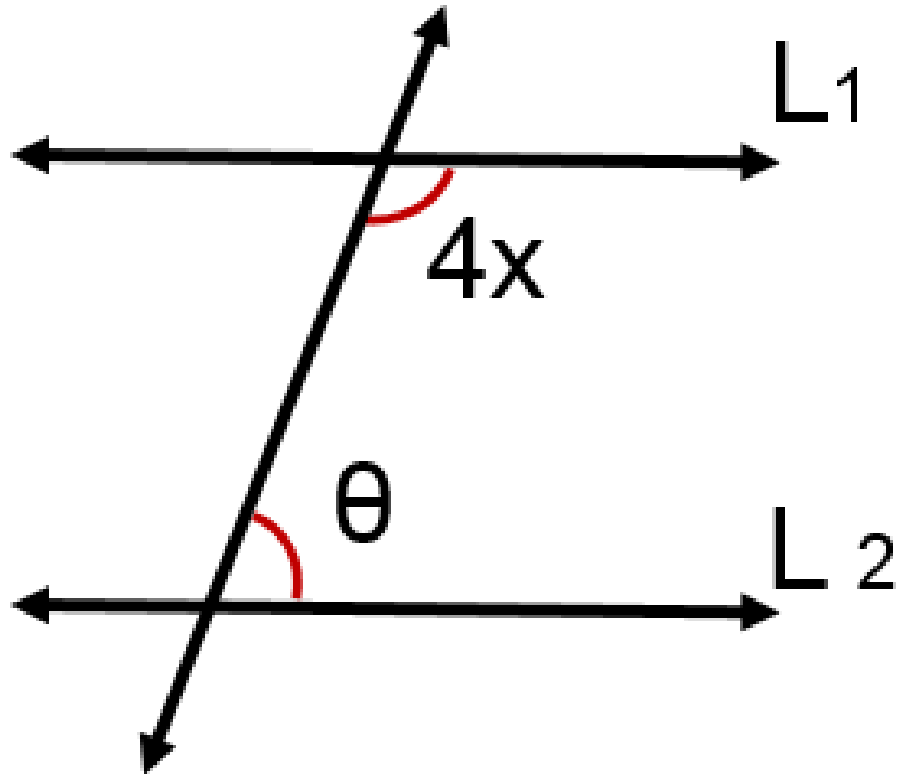


➡ $3x - 20^\circ = 2x + y$

$x - y = 20^\circ$



7. Si $L_1 \parallel L_2$, halle el menor valor de x ,
además $\theta < 80^\circ$



Por dato: $\theta <$

80°

$$180^\circ - 4x < 80^\circ$$

$$100^\circ < 4x$$

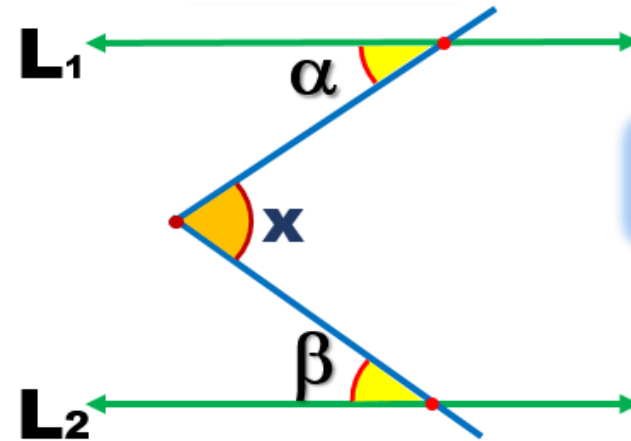
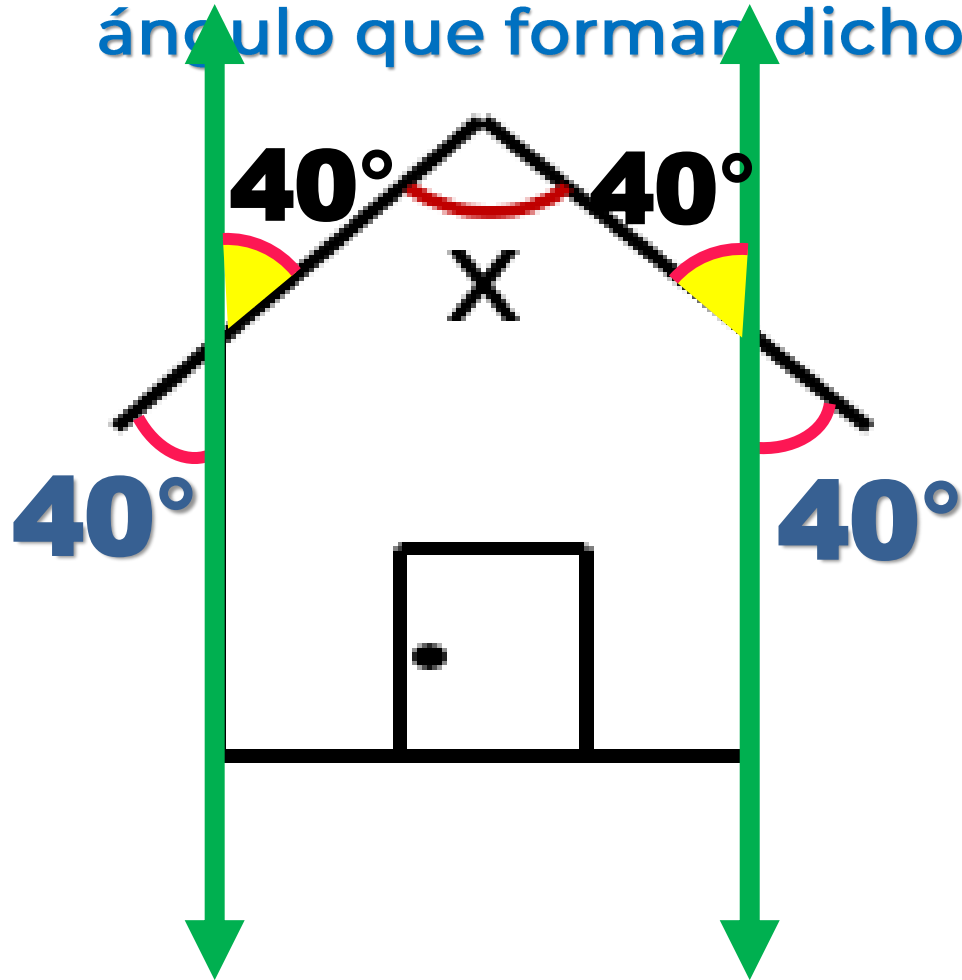
$$25^\circ < x$$

$$\rightarrow 4x + \theta = 180^\circ$$

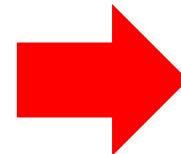
$$\theta = 180^\circ - 4x$$

$$x_{\min} = 26^\circ$$

8. En la figura se muestra el frontis de una casa. Si el techo forma ángulos iguales a 40° con las paredes laterales, halle la medida del ángulo que forman dichos techos.



$$x = \alpha + \beta$$

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

$$x = 80^\circ$$