



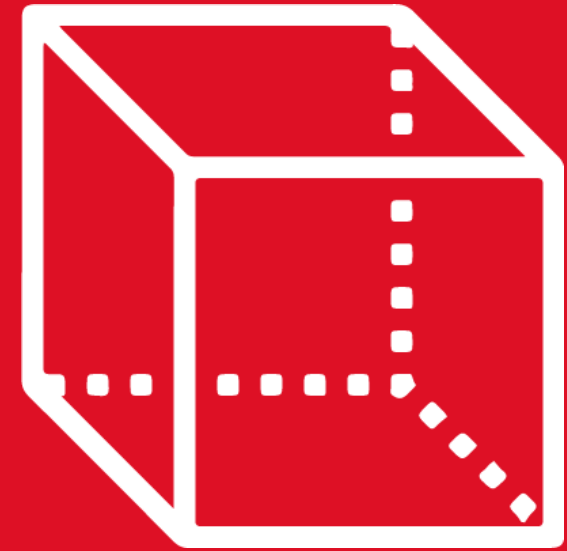
GEOMETRÍA

Capítulo 4

1st

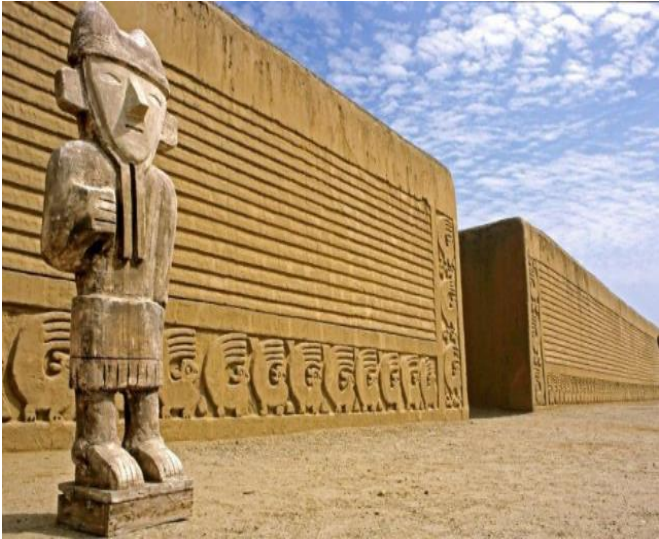
SECONDARY

Ángulos entre dos rectas
paralelas y una recta
secante



 **SACO OLIVEROS**

MOTIVATING | STRATEGY



ÁNGULOS ENTRE DOS RECTAS PARALELAS Y UNA SECANTE

RECTAS PARALELAS:

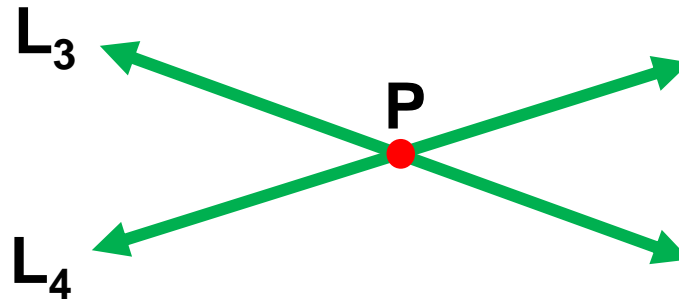
Dos rectas son paralelas si están contenidas en un plano y no tienen ningún punto en común.



$$\overleftrightarrow{L_1} \parallel \overleftrightarrow{L_2}$$

RECTAS SECANTES:

Dos rectas son secantes si tienen un punto en común.

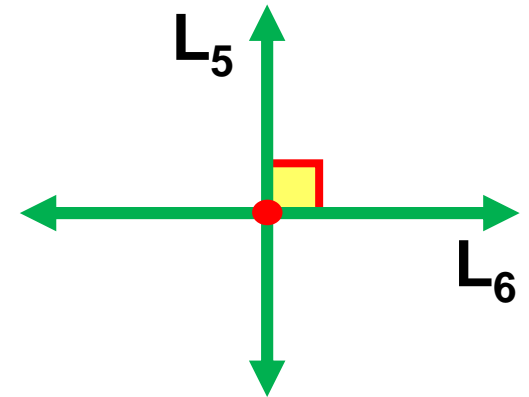


$$\overleftrightarrow{L_3} \nparallel \overleftrightarrow{L_4}$$

RECTAS

PERPENDICULARES:

Son aquellas rectas secantes que forman ángulos rectos.

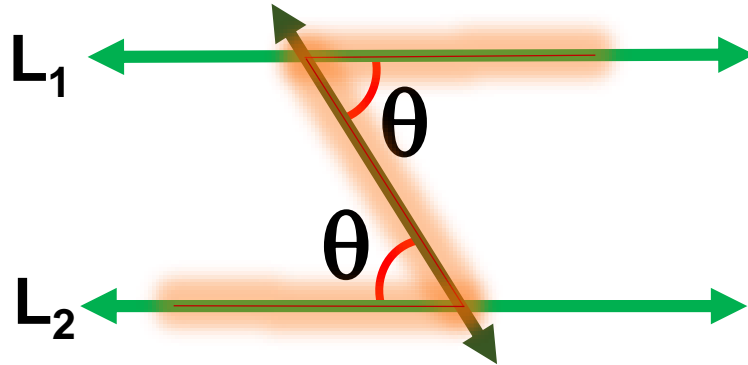


$$\overleftrightarrow{L_5} \perp \overleftrightarrow{L_6}$$

ÁNGULOS ALTERNOS INTERNOS

Si

$$\overleftrightarrow{L_1} // \overleftrightarrow{L_2}$$



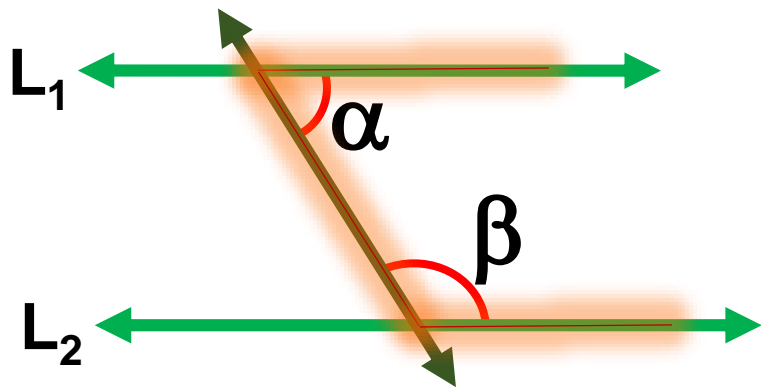
ÁNGULOS CONJUGADOS INTERNOS

Si

$$\overleftrightarrow{L_1} // \overleftrightarrow{L_2}$$

entonces

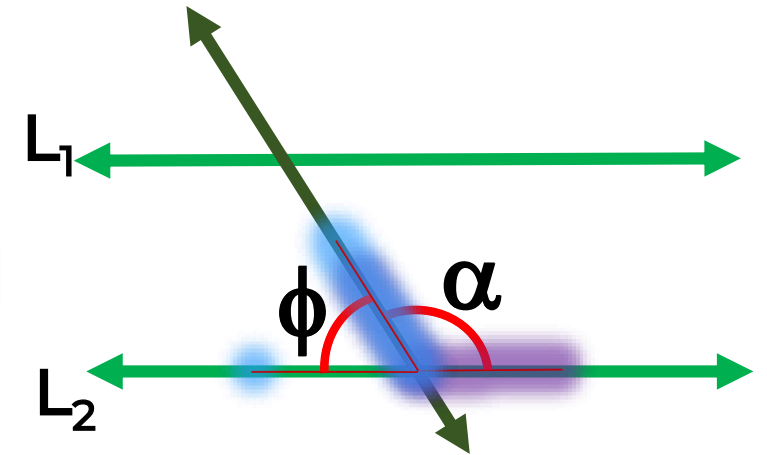
$$\alpha + \beta = 180^\circ$$



ÁNGULOS CORRESPONDIENTES

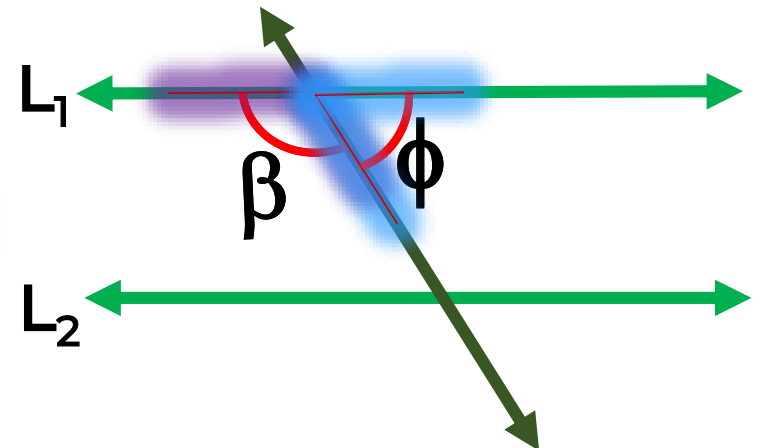
Si

$$\overleftrightarrow{L_1} // \overleftrightarrow{L_2}$$

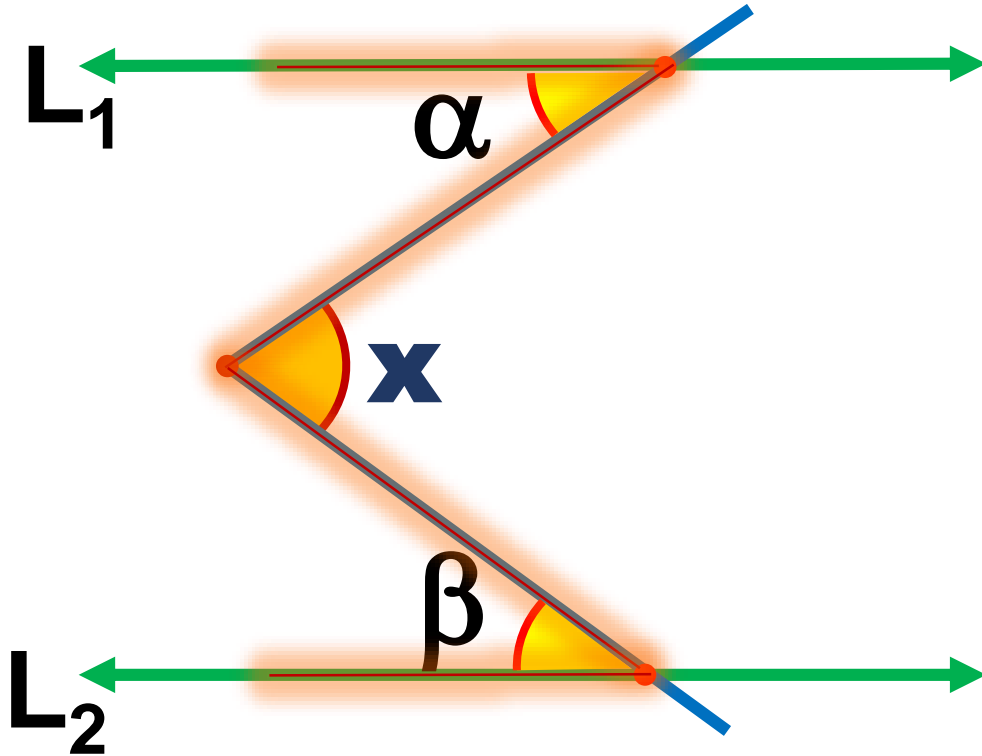


Si

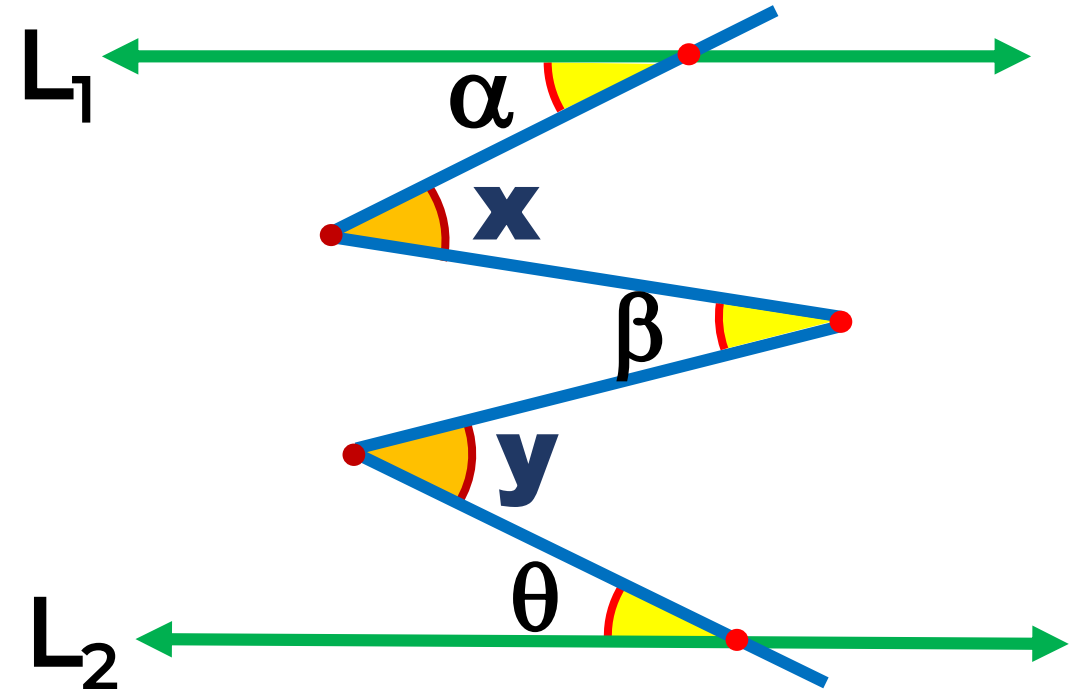
$$\overleftrightarrow{L_1} // \overleftrightarrow{L_2}$$



TEOREMAS



Si $\overleftrightarrow{L_1} \parallel \overleftrightarrow{L_2}$ entonces $x = \alpha + \beta$

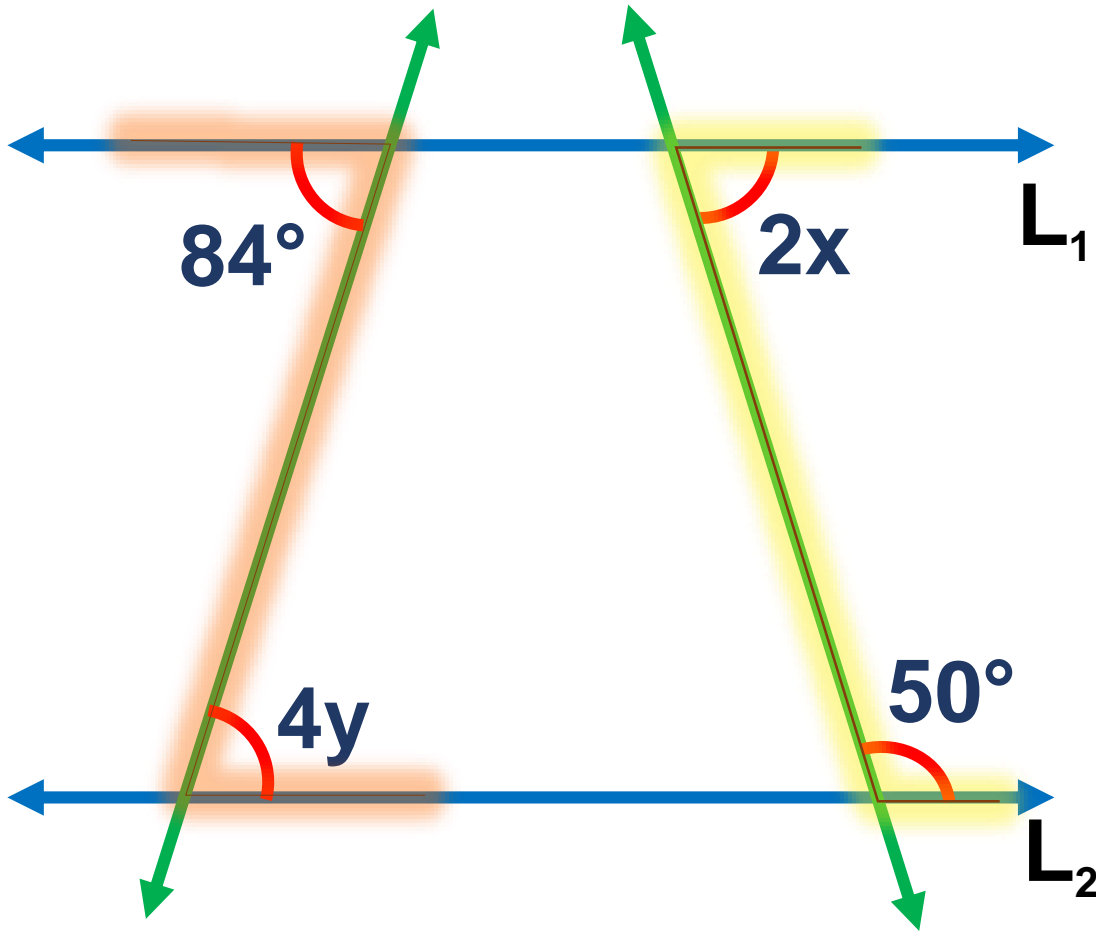


Si $\overleftrightarrow{L_1} \parallel \overleftrightarrow{L_2}$

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

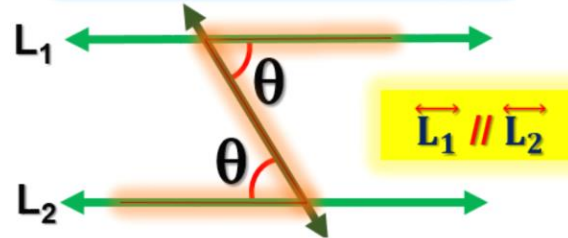


1. Si $\vec{L}_1 \parallel \vec{L}_2$, calcule $x + y$.



Resolución

ÁNGULOS ALTERNOS INTERNOS



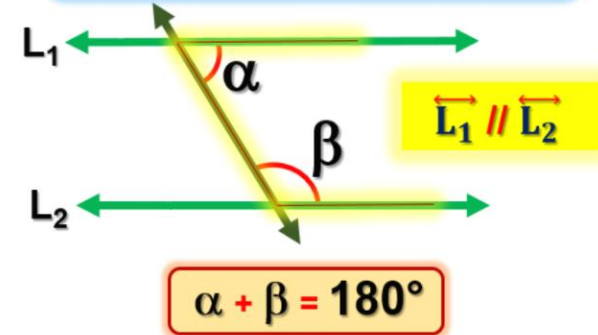
$$4y = 84^\circ$$

$$y = 21^\circ$$

Piden: $x + y$

$$x + y = 65^\circ + 21^\circ$$

ÁNGULOS CONJUGADOS



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

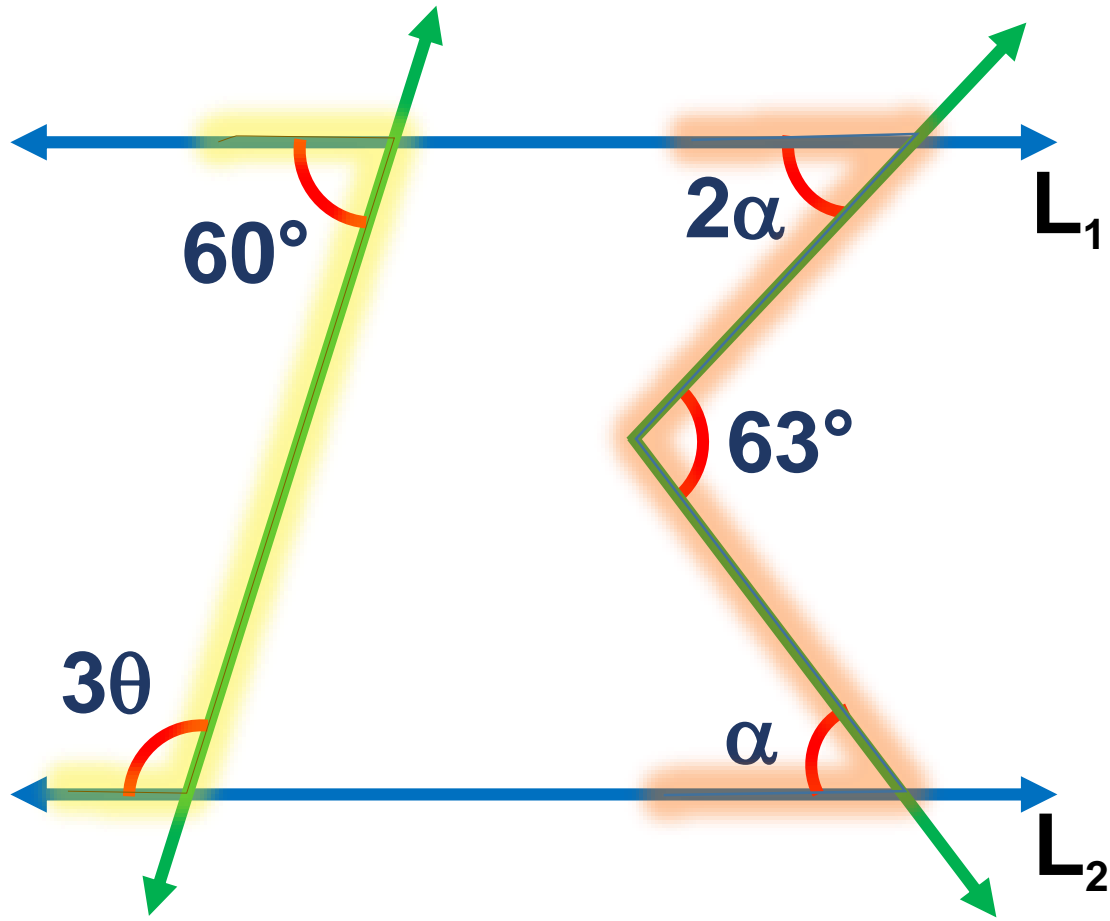
$$2x = 130^\circ$$

$$x = 65^\circ$$

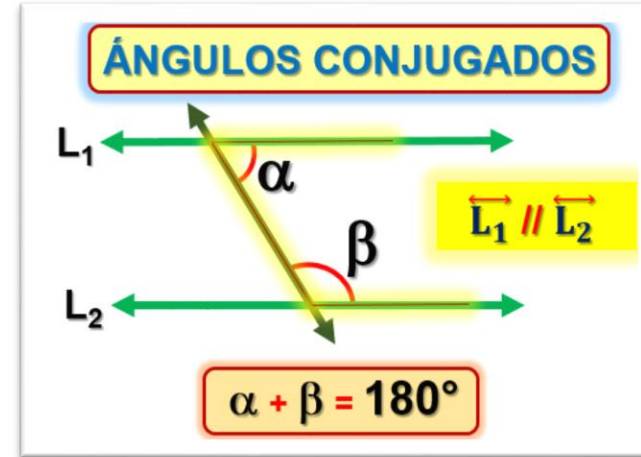
$$x + y = 86^\circ$$



2. Si $\vec{L}_1 \parallel \vec{L}_2$, calcule $\theta + \alpha$.



Resolución



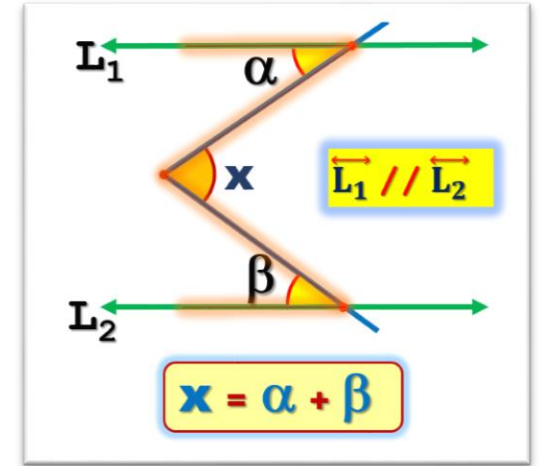
$$3\theta + 60^\circ = 180^\circ$$

$$3\theta = 120^\circ$$

$$\theta = 40^\circ$$

Piden: $\theta + \alpha$

$$\theta + \alpha = 40^\circ + 21^\circ$$



$$2\alpha + \alpha = 63^\circ$$

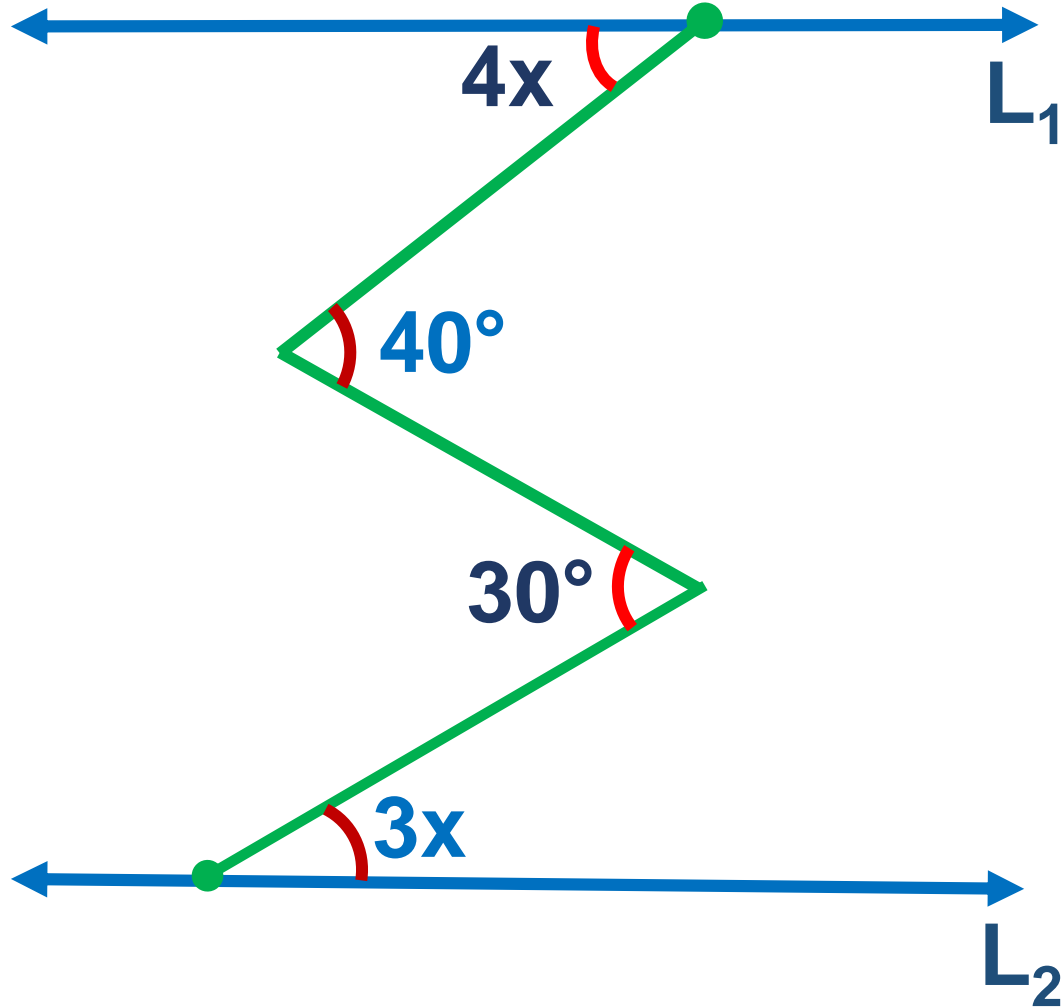
$$3\alpha = 63^\circ$$

$$\alpha = 21^\circ$$

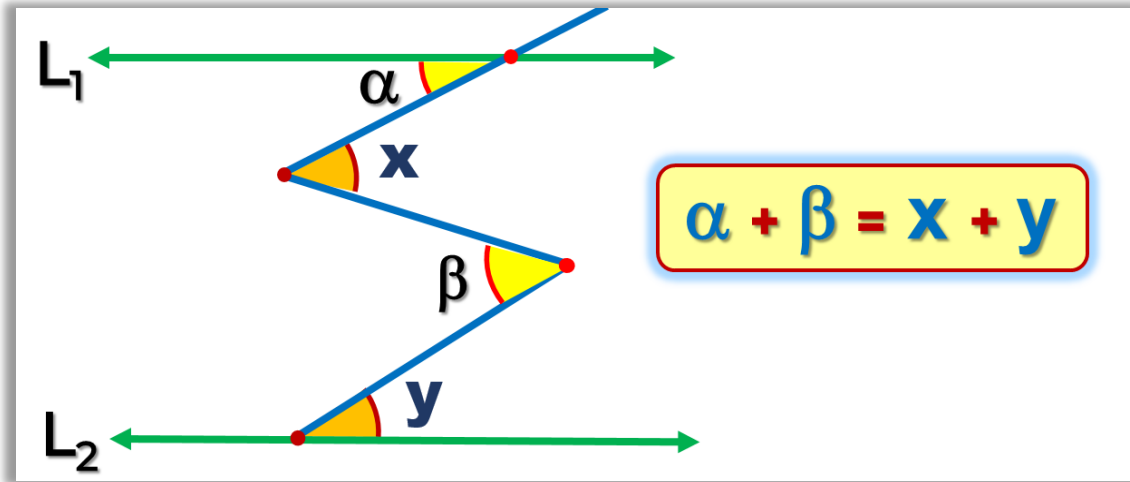
$$\theta + \alpha = 61^\circ$$



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



Resolución



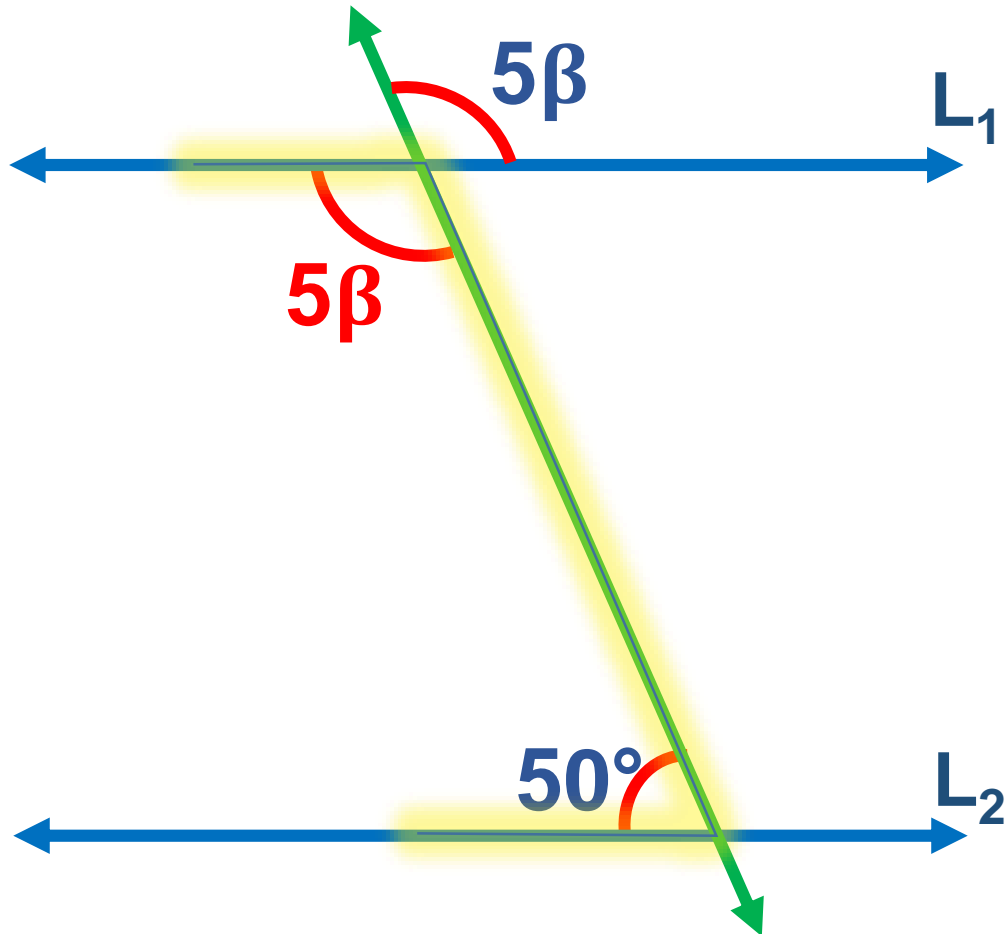
$$4x + 30^\circ = 40^\circ + 3x$$

$$4x - 3x = 40^\circ - 30^\circ$$

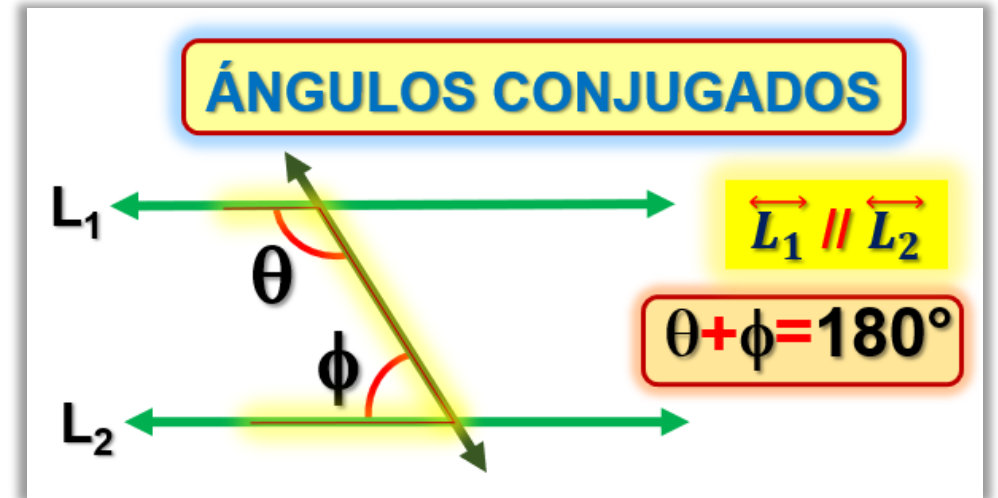
$$x = 10^\circ$$



4. Si $\vec{L}_1 \parallel \vec{L}_2$, halle el valor de β .



Resolución



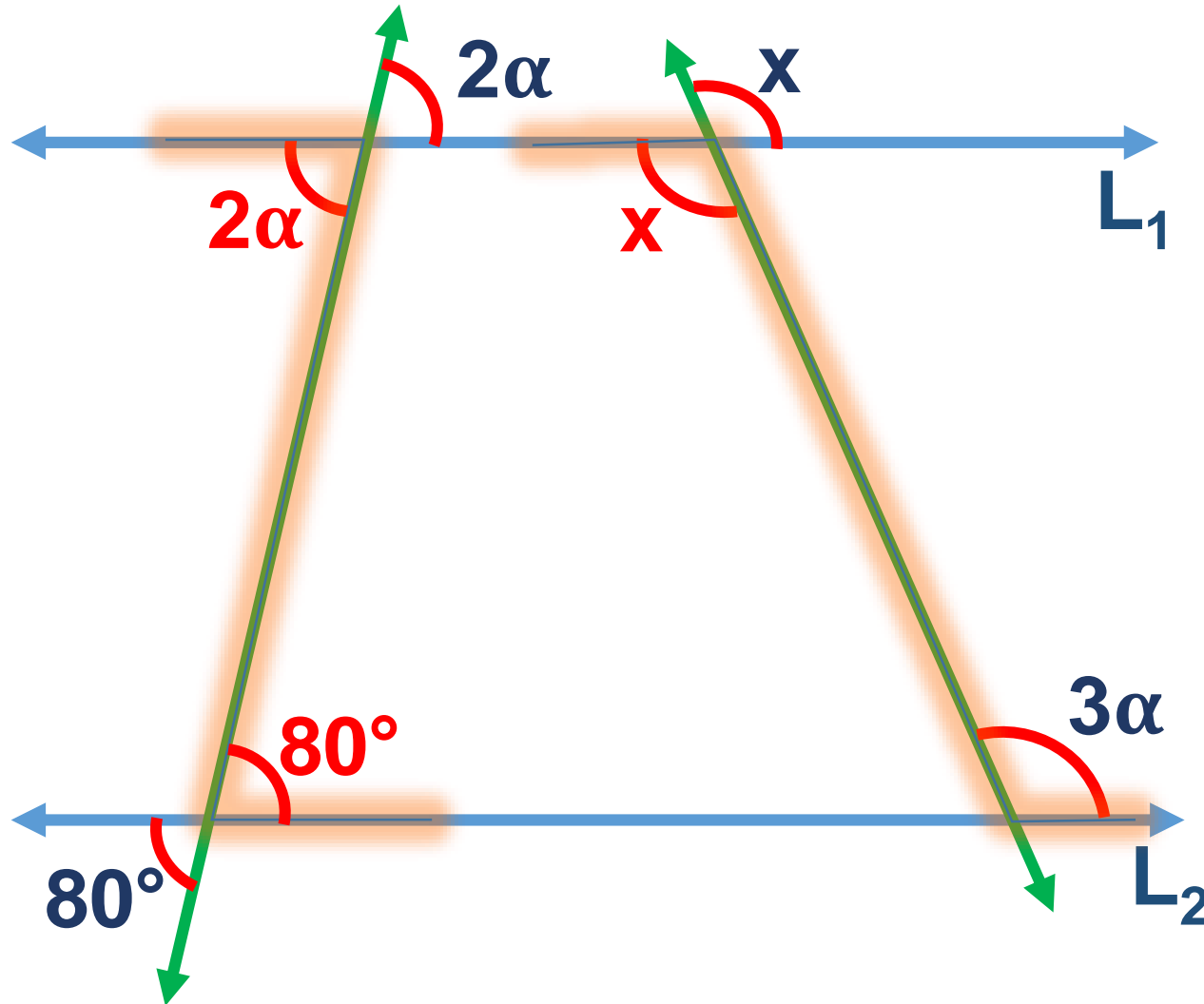
$$5\beta + 50^\circ = 180^\circ$$

$$5\beta = 130^\circ$$

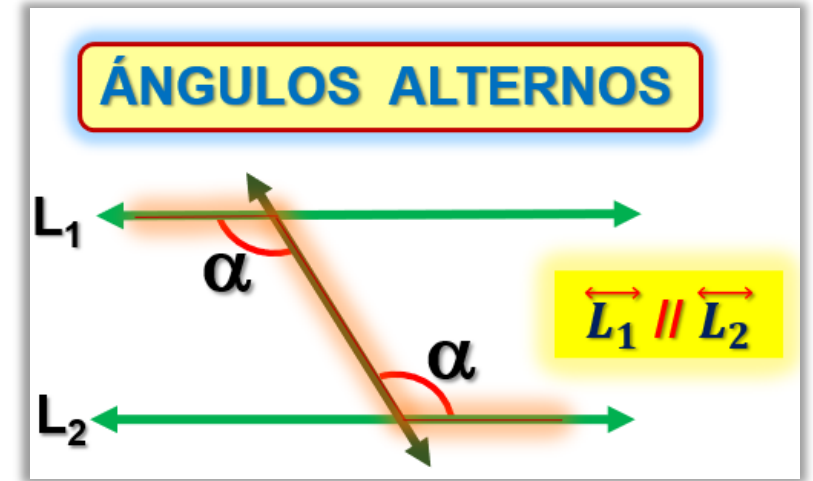
$$\beta = 26^\circ$$



5. Si $\vec{L}_1 \parallel \vec{L}_2$, halle el valor de x .



Resolución

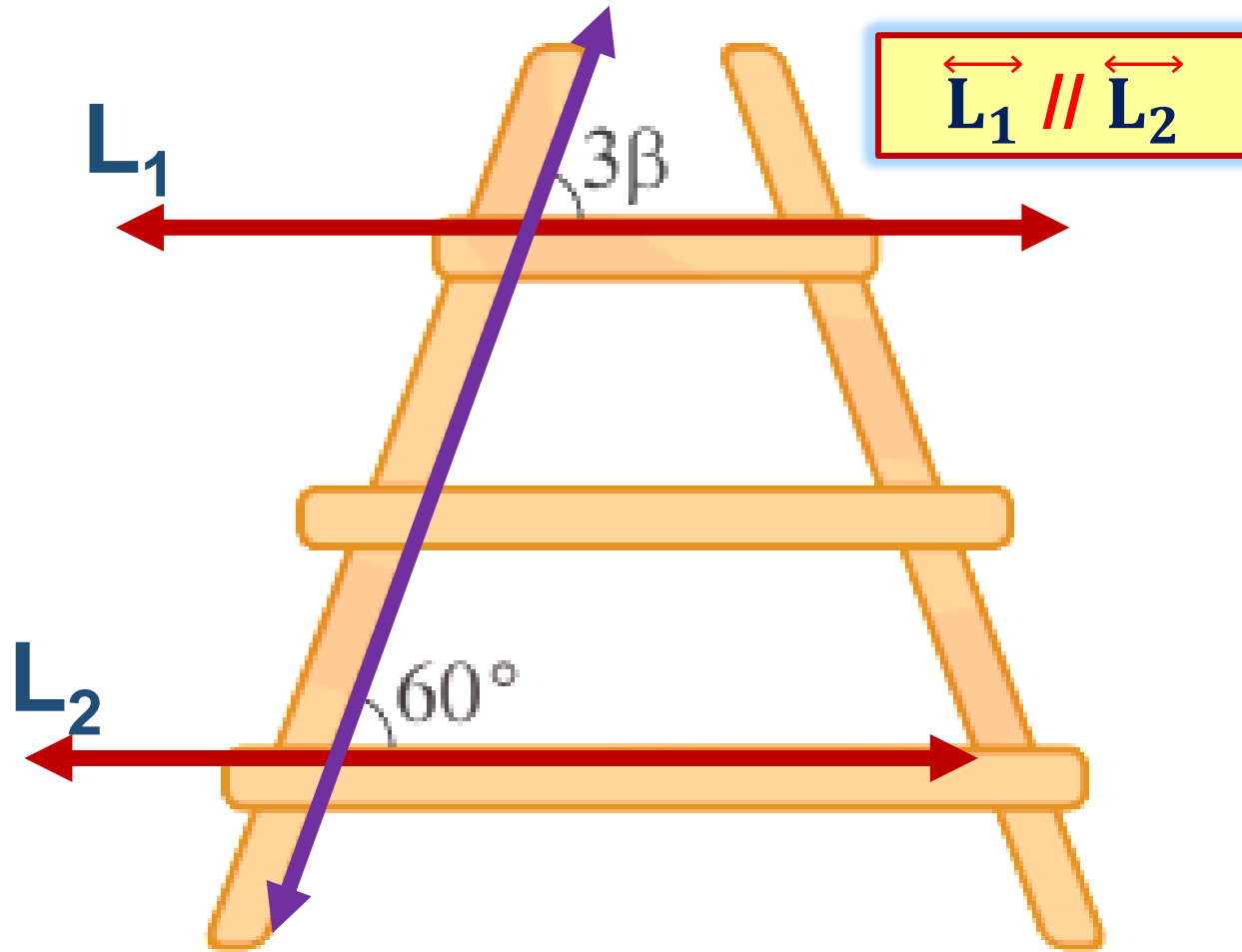


- $2\alpha = 80^\circ$
 $\alpha = 40^\circ$
- $x = 3\alpha$
 $x = 3(40^\circ)$

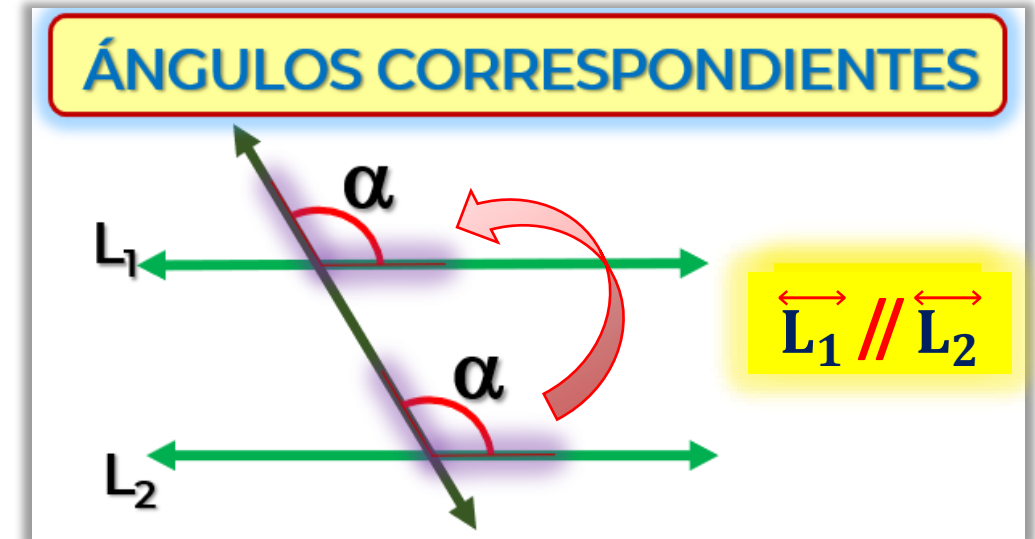
$$x = 120^\circ$$



6. En el gráfico se muestra una escalera. Halle el valor de β .



Resolución

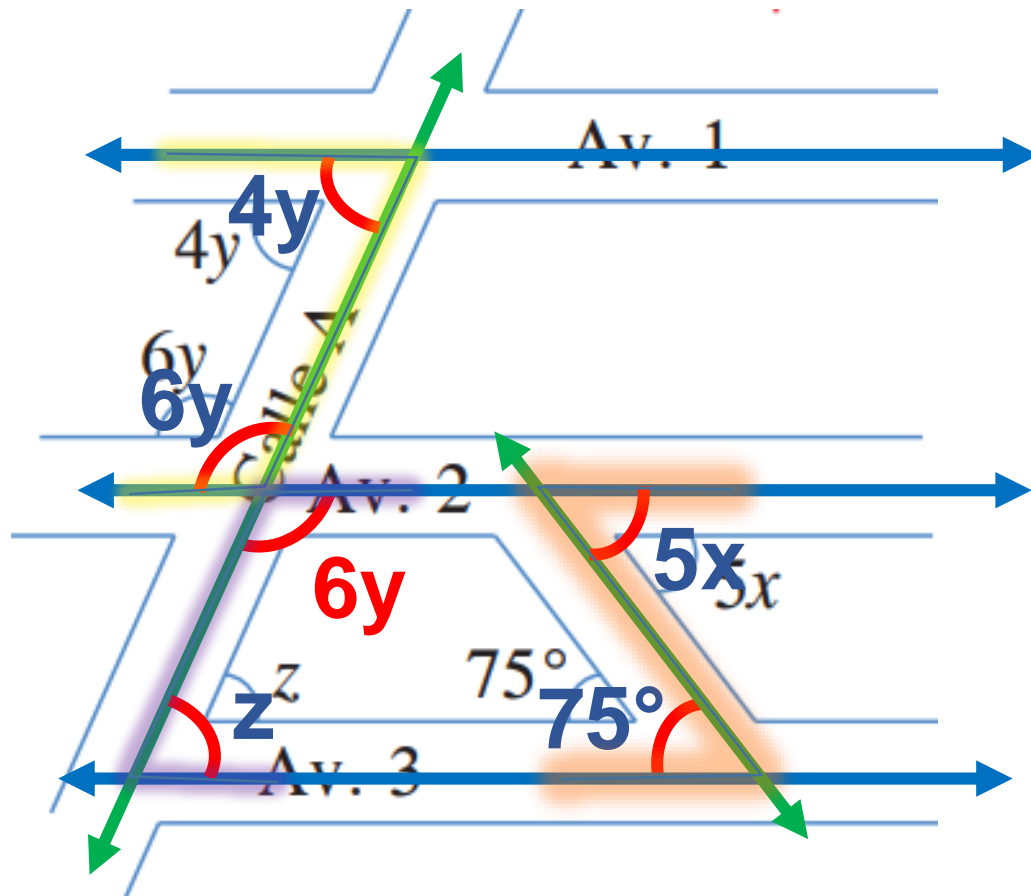


$$3\beta = 60^\circ$$

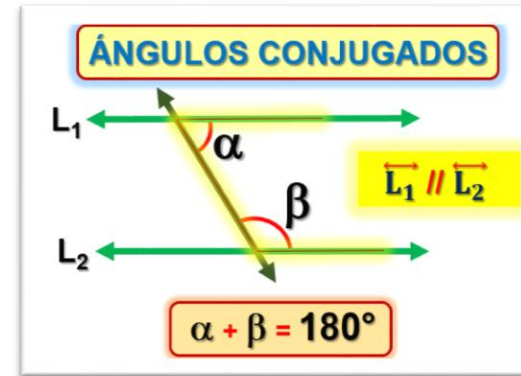
$$\beta = 20^\circ$$



7. En el gráfico se muestra el croquis de una ciudad, si las avenidas 1, 2 y 3 son paralelas, calcule $x + y + z$.



Resolución



$$4y + 6y = 180^\circ$$

$$10y = 180^\circ$$

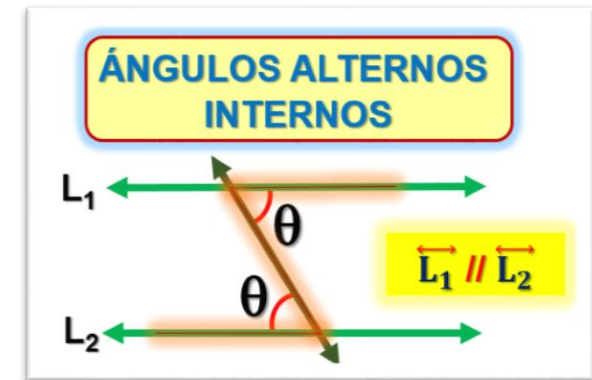
$$y = 18^\circ$$

$$6y + z = 180^\circ$$

$$6(18^\circ) + z = 180^\circ$$

$$108^\circ + z = 180^\circ$$

$$z = 72^\circ$$



$$5x = 75^\circ$$

$$x = 15^\circ$$

Piden: $x + y + z$

$$15^\circ + 18^\circ + 72^\circ$$

$$x + y + z = 105^\circ$$