

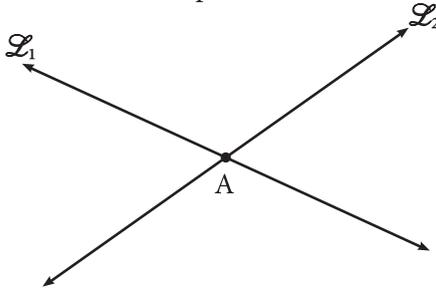


# ÁNGULOS FORMADOS POR RECTAS PARALELAS Y UNA SECANTE

### POSICIONES RELATIVAS DE DOS RECTAS EN EL PLANO

#### 1. Rectas secantes

Son aquellas que tienen un solo punto en común, el cuál se denomina punto de intersección.



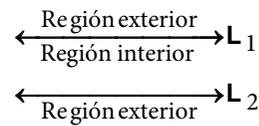
$$\text{Si: } \vec{L}_1 \cap \vec{L}_2 = \{A\}$$

Entonces:

$\vec{L}_1$  y  $\vec{L}_2$  son secantes.

#### 2. Rectas paralelas

Son aquellos que, estando contenidas en un mismo plano, no tienen punto en común.



$$\text{Si: } \vec{L}_1 \cap \vec{L}_2 = \{ \}$$

Entonces:

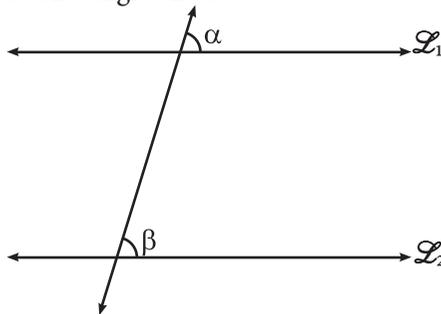
$$\vec{L}_1 \text{ y } \vec{L}_2$$

Son paralelas ( $\vec{L}_1 // \vec{L}_2$ )

### ÁNGULOS

#### 1. Ángulos correspondientes

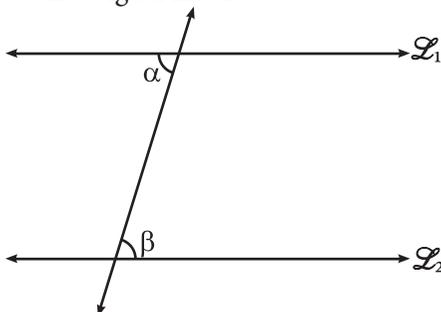
Estos ángulos son congruentes.



$$\text{Si } \vec{L}_1 // \vec{L}_2 \Rightarrow \boxed{\alpha = \beta}$$

#### 2. Ángulos alternos

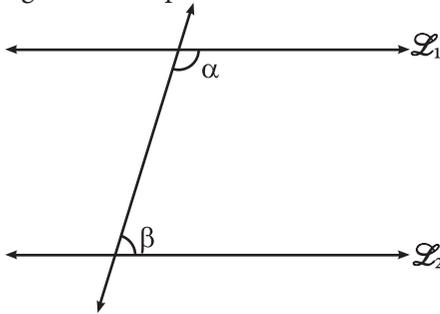
Estos ángulos son de igual medida.



$$\text{Si } \vec{L}_1 // \vec{L}_2 \Rightarrow \boxed{\alpha = \beta}$$

### 3. Ángulos conjugados

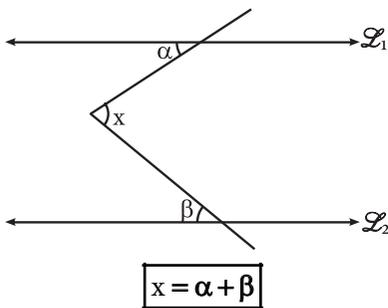
Estos ángulos son suplementarios.



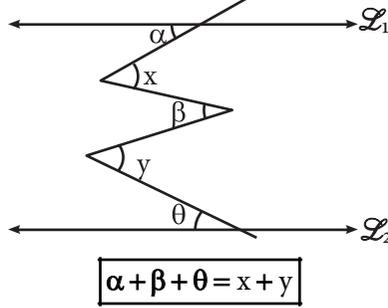
Si:  $\vec{L}_1 // \vec{L}_2 \Rightarrow \boxed{\alpha + \beta = 180^\circ}$

### PROPIEDADES

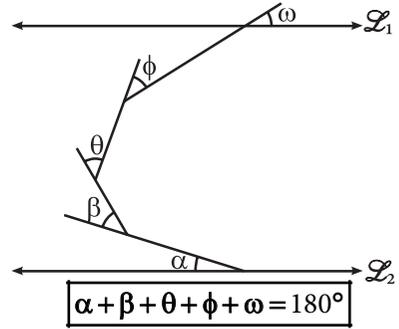
1. Si:  $\vec{L}_1 // \vec{L}_2$ :



2. Si  $\vec{L}_1 // \vec{L}_2$ , se cumple:

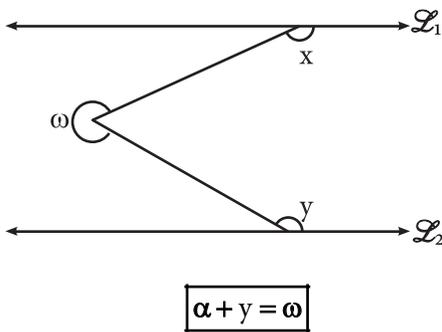


3. Si  $\vec{L}_1 // \vec{L}_2$ , se cumple:

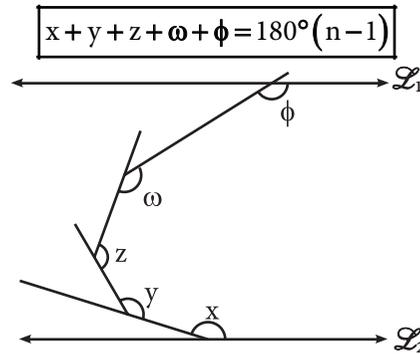


### PROPIEDADES COMPLEMENTARIAS

1. Si:  $\vec{L}_1 // \vec{L}_2$ :



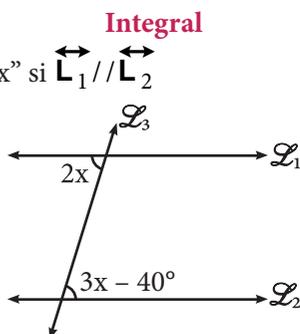
2. Si  $\vec{L}_1 // \vec{L}_2$ , entonces, se cumple:



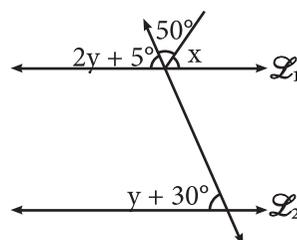
Donde: "n" es el número de ángulos.

### TRABAJANDO EN CLASE

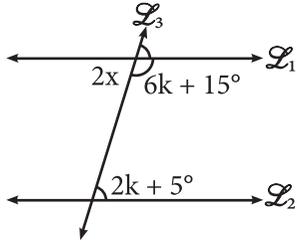
1. Calcula "x" si  $\vec{L}_1 // \vec{L}_2$



2. Calcula "x", si  $\vec{L}_1 // \vec{L}_2$ .

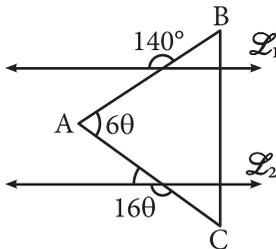


3. Calcula "x", si  $L_1 // L_2$ .



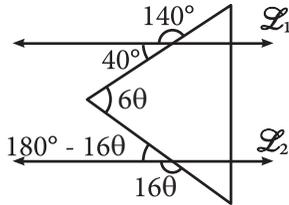
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4. Calcula "θ", si  $L_1 // L_2$ .



Solución:

Completamos los ángulos de forma adecuada.



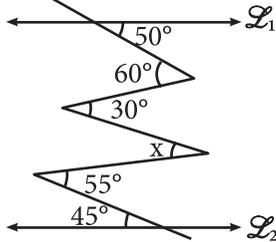
Por propiedad

$$40^\circ + 180^\circ - 16\theta = 6\theta$$

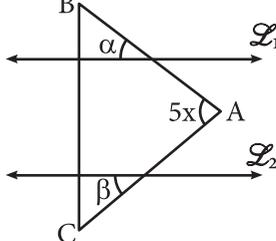
$$220^\circ = 22\theta$$

$$\theta = 10^\circ$$

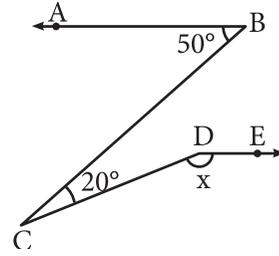
5. Calcula "x", si  $L_1 // L_2$ .



6. Calcula "x", si  $L_1 // L_2$  y  $\alpha + \beta = 70^\circ$ .

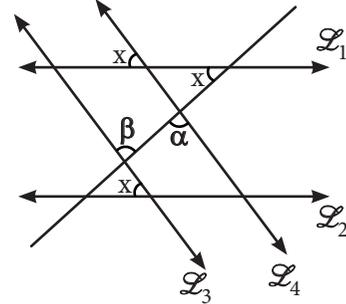


7. Calcula "x", si  $AB // DE$ .



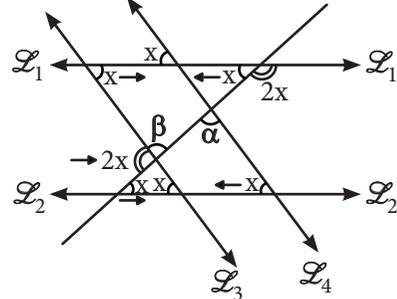
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8. Si las rectas  $L_1 // L_2$  son paralelas y  $\alpha + \beta = 5x$ , calcula el valor de "x"



Solución:

Desplazamos adecuadamente los ángulos correspondientes



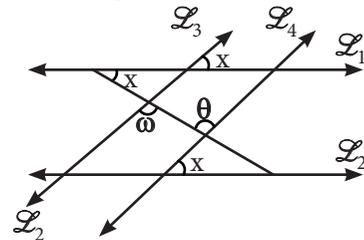
Observamos que

$$2x + \beta = 180^\circ \quad (+)$$

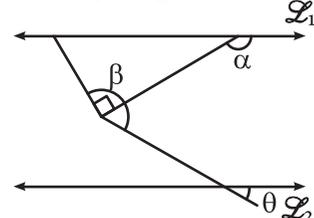
$$2x + \alpha = 180^\circ$$

$$\frac{4x + 5x = 360}{x = 40^\circ}$$

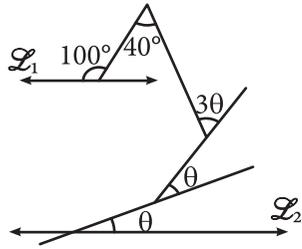
9. Calcula "x" si  $L_1 // L_2$  y  $\omega + \theta = 2x$



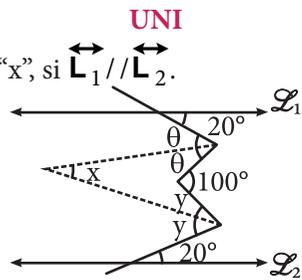
10. Calcula "θ", si  $L_1 // L_2$  y  $\alpha + \beta = 300^\circ$



11. Calcula "θ", si  $L_1 // L_2$ .



12. Calcula "x", si  $L_1 // L_2$ .



**Solución:**

Por propiedad del serrucho:

$$20^\circ + 100^\circ + 20^\circ = 2(\theta + y)$$

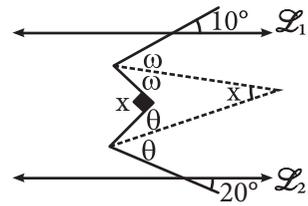
$$\theta + y = 70^\circ$$

Por propiedad del serrucho:

$$20^\circ + x + 20^\circ = \theta + y$$

$$x = 30x^\circ$$

13. Calcula "x", si  $L_1 // L_2$ .



14. Si  $L_1 // L_2$  y entre ellos hay "n" ángulos de medidas "θ", ¿cuál es el valor de "θ"?

