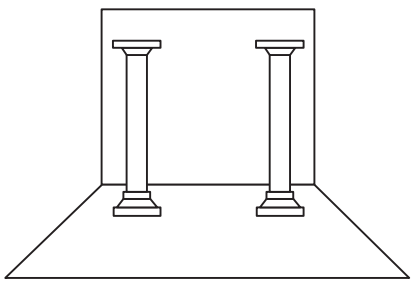
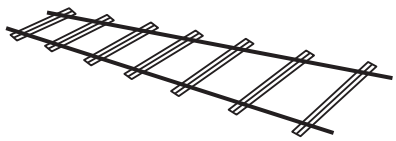
ÁNGULOS EN RECTAS PARALELAS Y SECANTES

• Marco teórico

Dos columnas de una casa nos dan la idea de rectas paralelas.

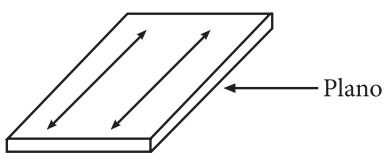


Los rieles del ferrocarril también nos da la idea de rectas paralelas.



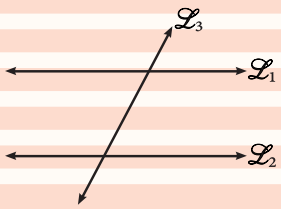
I. RECTAS PARALELAS

Son aquellas rectas que pertenecen a un mismo plano y que al prolongarlas no tendrán punto de contacto.

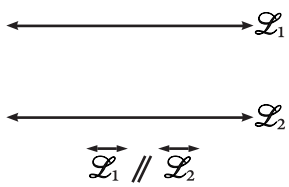


• Recuerda que

$\overleftrightarrow{\mathscr{L}_3}$: Recta transversal o secante

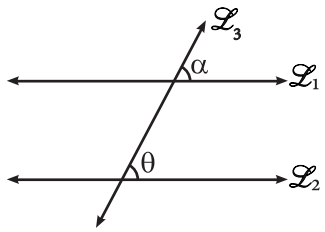


Notación:



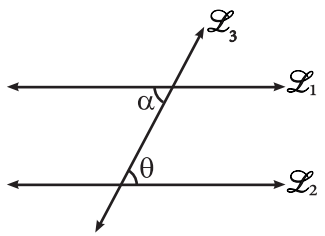
Notación: Se lee, $\overleftrightarrow{\mathscr{L}_1}$ paralela a la $\overleftrightarrow{\mathscr{L}_2}$.

1. Ángulos correspondientes



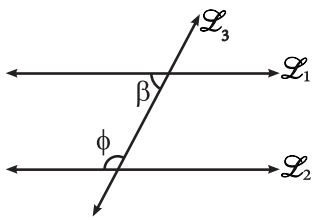
Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2} \Rightarrow \alpha = \theta$

2. Ángulos alternos internos



Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2} \Rightarrow \alpha = \theta$

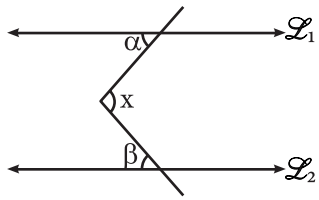
3. Ángulos conjugados internos



Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2} \Rightarrow \beta + \phi = 180°$

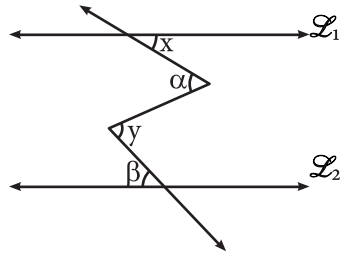
II. PROPIEDADES

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



$\Rightarrow \boxed{x=\alpha+\beta}$

2. Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$

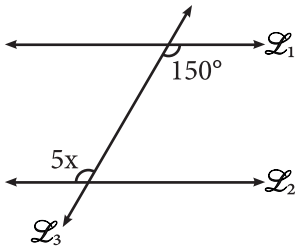


$\Rightarrow \boxed{x+y=\alpha+\beta}$

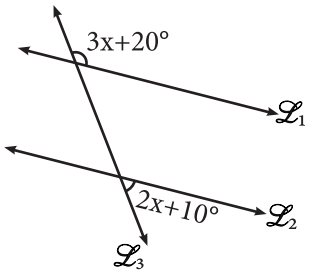
• Trabajando en Clase

Integral

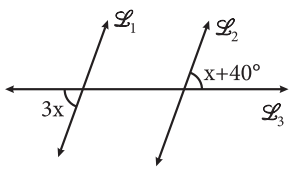
1. Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$, calcula "x".



2. Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$, calcula "x".



3. Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$, calcula "x".



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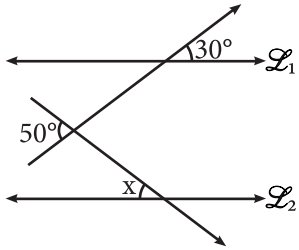
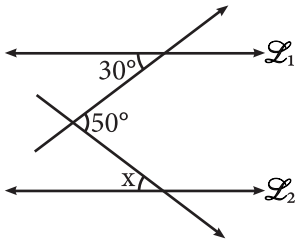
4. Si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$, calcula "x".

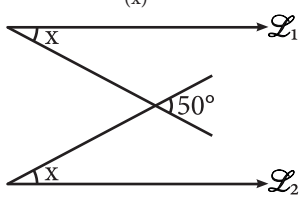


Resolución:
Del gráfico, piden "x".

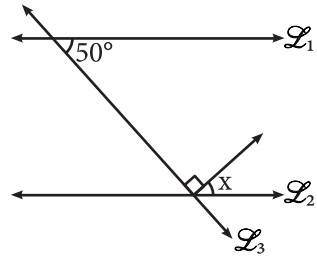


Aplicamos la propiedad:
x + 30° = 50°
Por tanto: x = 20°

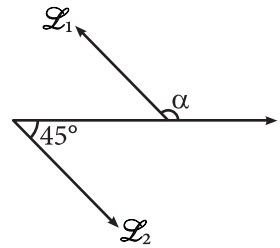
5. Calcula "$S_{(x)}$", si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$.



6. Calcula "x", si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$.



7. Calcula "α", si: $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$.



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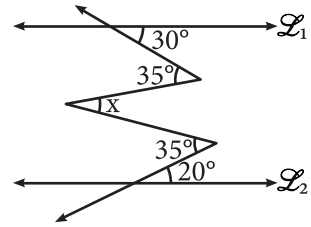
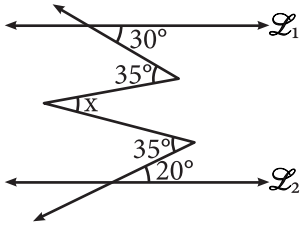
8. Calcula "x", si $\overleftrightarrow{\mathscr{L}_1} // \overleftrightarrow{\mathscr{L}_2}$.



Resolución:

Nos piden: "x".



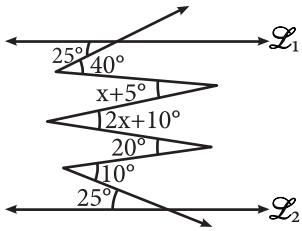
En el gráfico, aplicamos la propiedad del serrucho.

$35° + 35° = 30° + 20° + x$

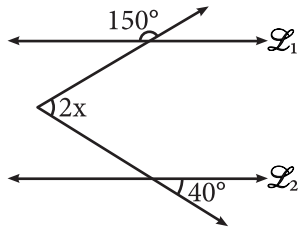
$70° = 50° + x$

$20° = x$

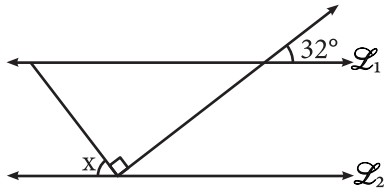
9. Calcula "x", si: $\overleftrightarrow{\mathscr{L}_1} \parallel \overleftrightarrow{\mathscr{L}_2}$.



10. Calcula "x", si: $\overleftrightarrow{\mathscr{L}_1} \parallel \overleftrightarrow{\mathscr{L}_2}$.



11. Calcula "x", si: $\overleftrightarrow{\mathscr{L}_1} \parallel \overleftrightarrow{\mathscr{L}_2}$.



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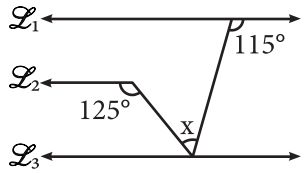
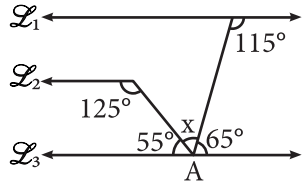
12. Calcula "x", si $\overleftrightarrow{\mathscr{L}_1} \parallel \overleftrightarrow{\mathscr{L}_2} \parallel \overleftrightarrow{\mathscr{L}_3}$



Resolución:

Nos piden "x".

En el gráfico, por ángulos conjugados internos.



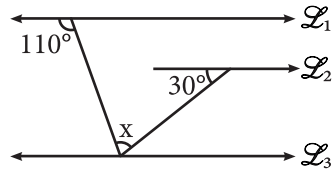
En el punto "A".

$x + 55° + 65° = 180°$

$x + 120° = 180°$

Por tanto: $x = 60°$

13. Calcula "x", si: $\overleftrightarrow{\mathscr{L}_1} \parallel \overleftrightarrow{\mathscr{L}_2}$.



14. Calcula "x + y + z" si:
$\overleftrightarrow{\mathscr{L}_1} \parallel \overleftrightarrow{\mathscr{L}_2}$ y $\overleftrightarrow{\mathscr{L}_3} \parallel \overleftrightarrow{\mathscr{L}_4}$