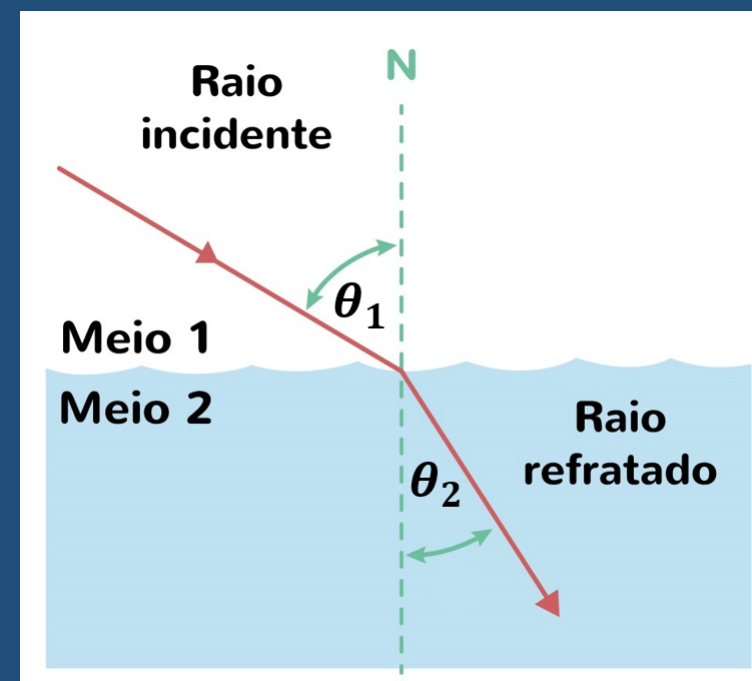




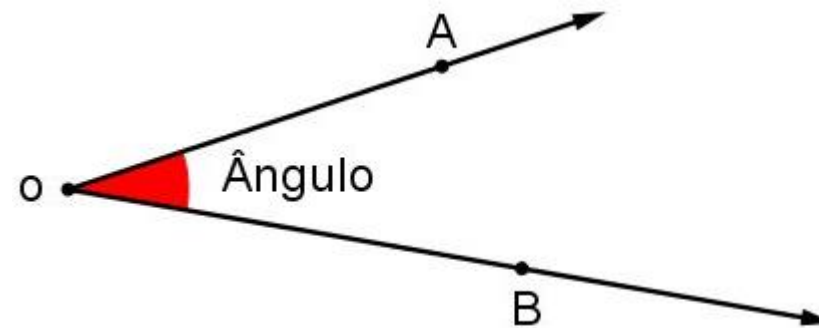
CENTRO EDUCACIONAL MARAPENDI – CEMP

GEOMETRIA – Prof. Clovis Reis

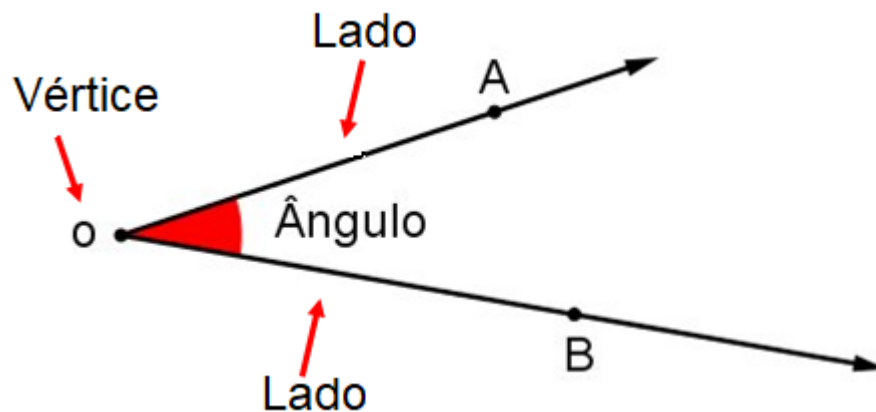
# ÂNGULOS



# 1. DEFINIÇÃO DE ÂNGULO



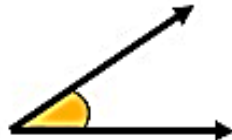



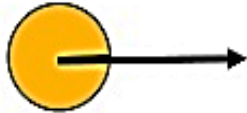
# 2. ELEMENTOS DE UM ÂNGULO



- Vértice:  $O$
- Lados:  $\vec{OA}$  e  $\vec{OB}$
- Indicação:  $\hat{A}OB$  ou  $\hat{B}OA$  ou  $\hat{O}$

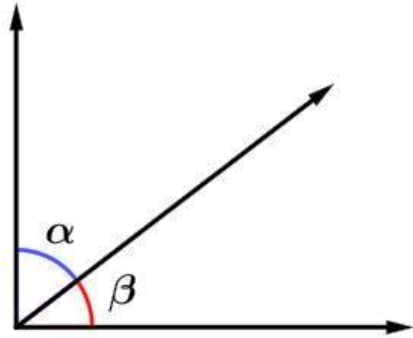
### 3. CLASSIFICAÇÃO DOS ÂNGULOS

Os ângulos são classificados conforme suas medidas:

Classificação	Medida	Representação
Agudo	Menor que $90^\circ$ .	
Reto	Igual a $90^\circ$ .	
Obtuso	Maior que $90^\circ$ .	
Meia Volta	Igual a $180^\circ$ .	
Volta Inteira	Igual a $360^\circ$ .	

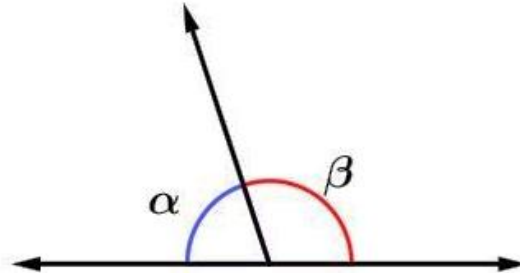
## 4. TIPOS DE ÂNGULOS

ÂNGULOS  
COMPLEMENTARES



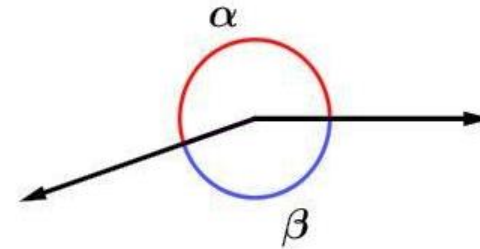
$$\alpha + \beta = 90^\circ$$

ÂNGULOS  
SUPLEMENTARES



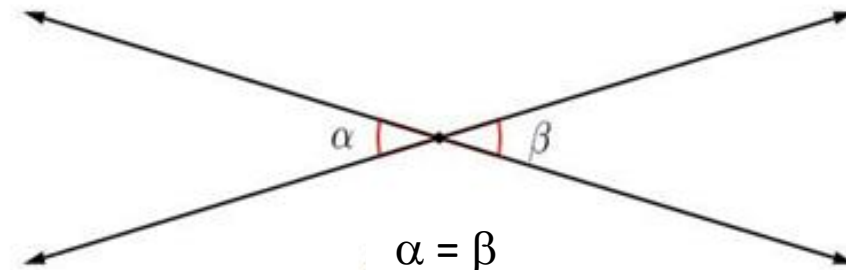
$$\alpha + \beta = 180^\circ$$

ÂNGULOS  
REPLEMENTARES



$$\alpha + \beta = 360^\circ$$

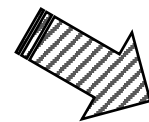
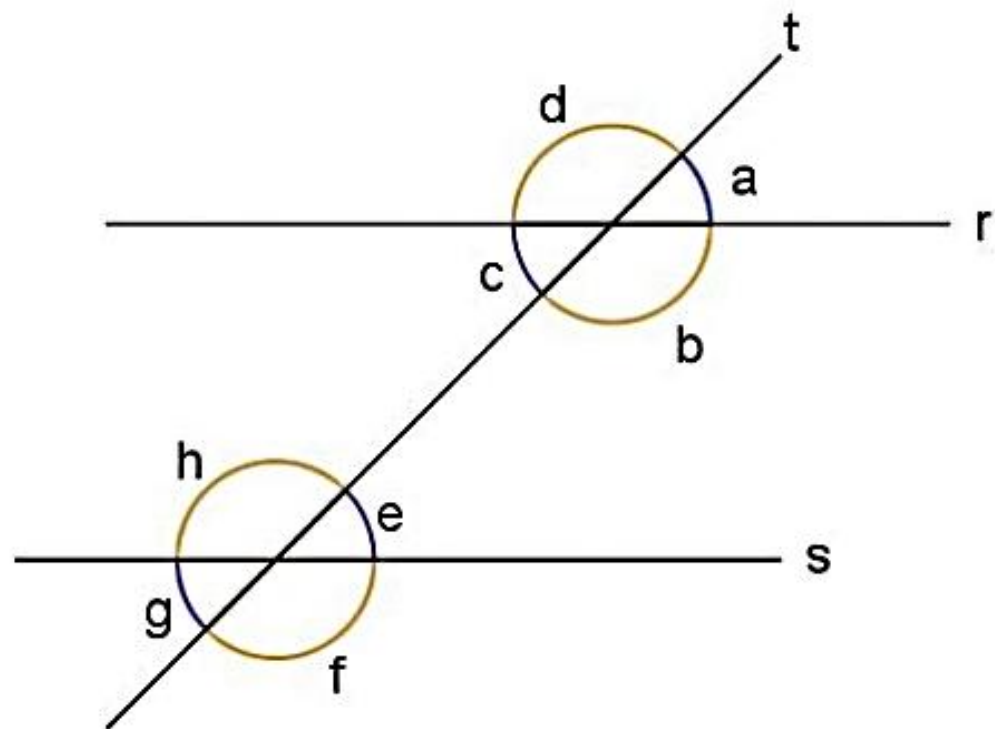
ÂNGULOS OPOSTOS  
PELO VÉRTICE (OPV)



$$\alpha = \beta$$

- O complemento de um ângulo  $\alpha$  é  $90^\circ - \alpha$  ;
- O suplemento de um ângulo  $\alpha$  é  $180^\circ - \alpha$  ;
- O replemento de um ângulo  $\alpha$  é  $360^\circ - \alpha$  .

## 5. RETAS PARALELAS CORTADAS POR UMA TRANSVERSAL



Correspondentes: 
$$\begin{cases} a = e \\ b = f \\ d = h \\ c = g \end{cases}$$

Alternos: 
$$\begin{cases} \text{internos:} & \begin{cases} b = h \\ c = e \end{cases} \\ \text{externos:} & \begin{cases} a = g \\ d = f \end{cases} \end{cases}$$

Colaterais: 
$$\begin{cases} \text{internos:} & \begin{cases} b + e = 180^\circ \\ c + h = 180^\circ \end{cases} \\ \text{externos:} & \begin{cases} a + f = 180^\circ \\ d + g = 180^\circ \end{cases} \end{cases}$$

## Referências:

DOLCE, Osvaldo; POMPEO, José Nicolau. Fundamentos de Matemática Elementar. Geometria Plana. Vol. 9. São Paulo: Atual, 1995.

<https://www.infoescola.com/matematica/angulos/>