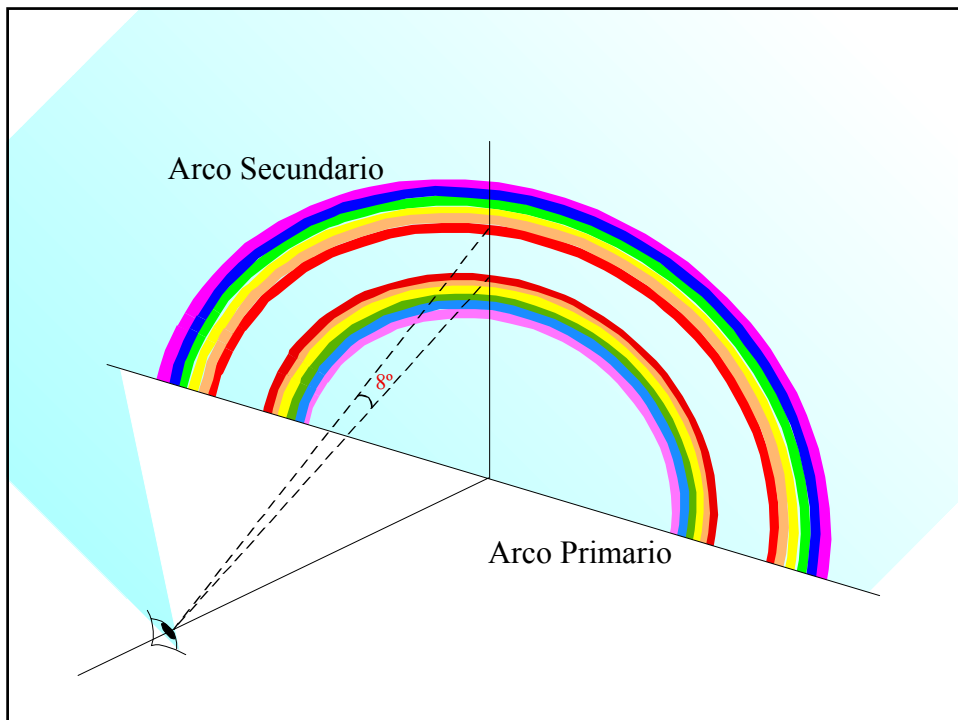
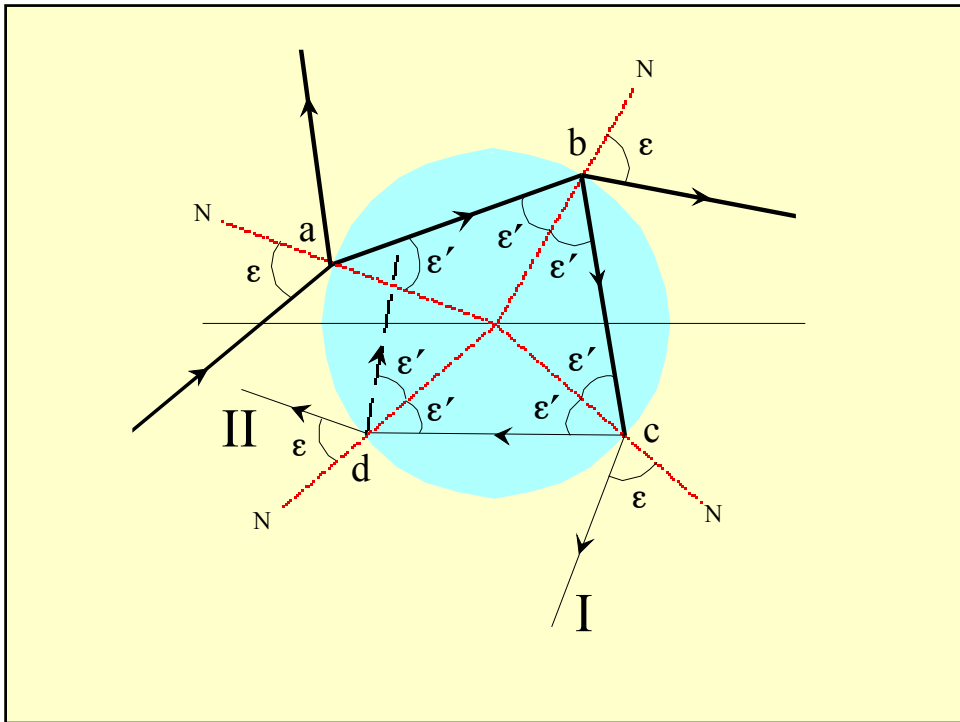
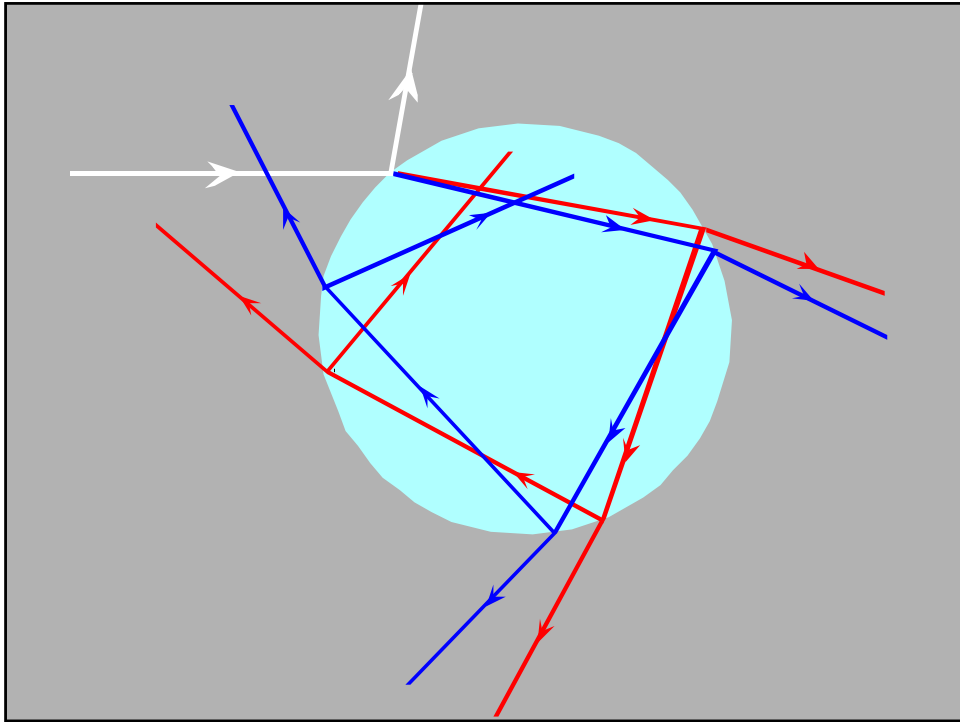
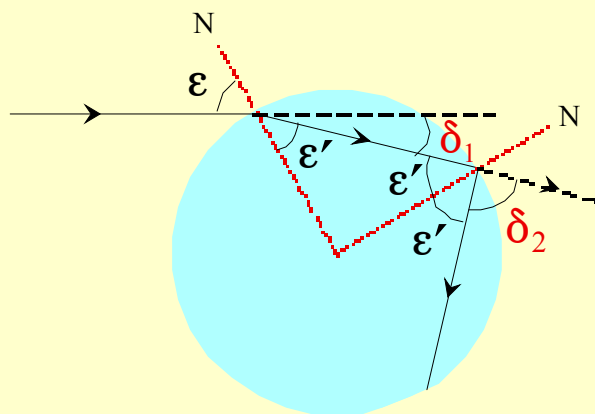
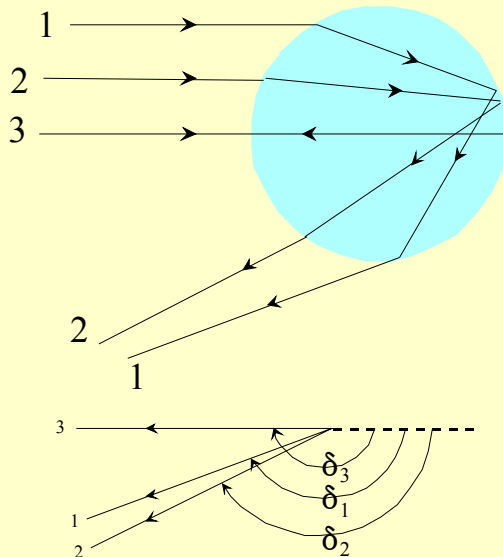


# EL ARCO IRIS





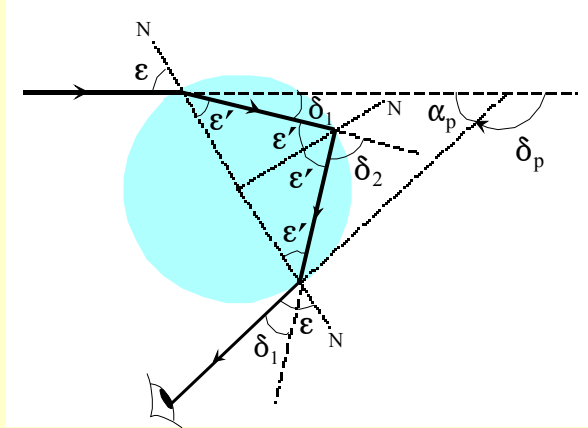
Rayos incidentes paralelos no sufren la misma desviación



$$\delta_{\text{refracción}} = \delta_1 = \epsilon - \epsilon'$$

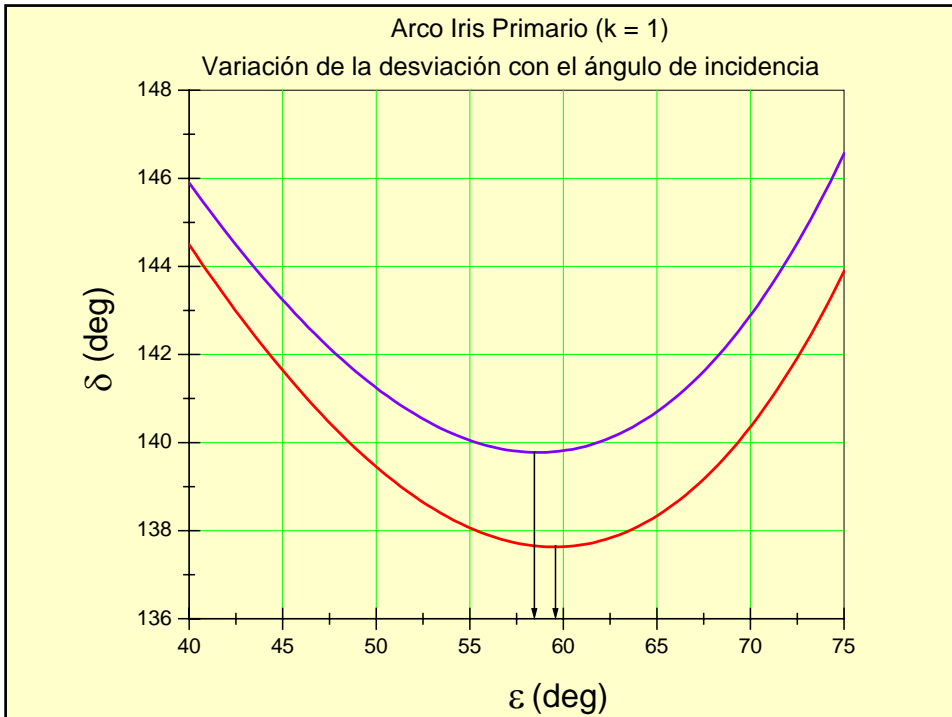
$$\delta_{\text{reflexión}} = \delta_2 = 180 - 2\epsilon'$$

## Desviación en arco primario

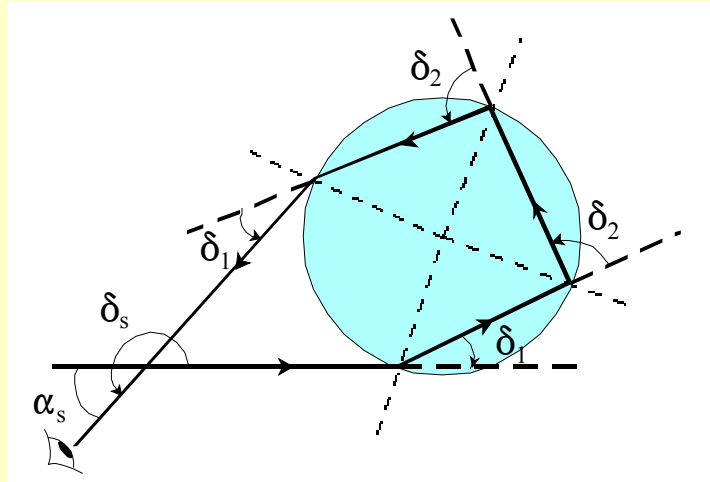


$$\delta_p = 2\delta_1 + \delta_2 = 2\varepsilon + 180 - 4\varepsilon'$$

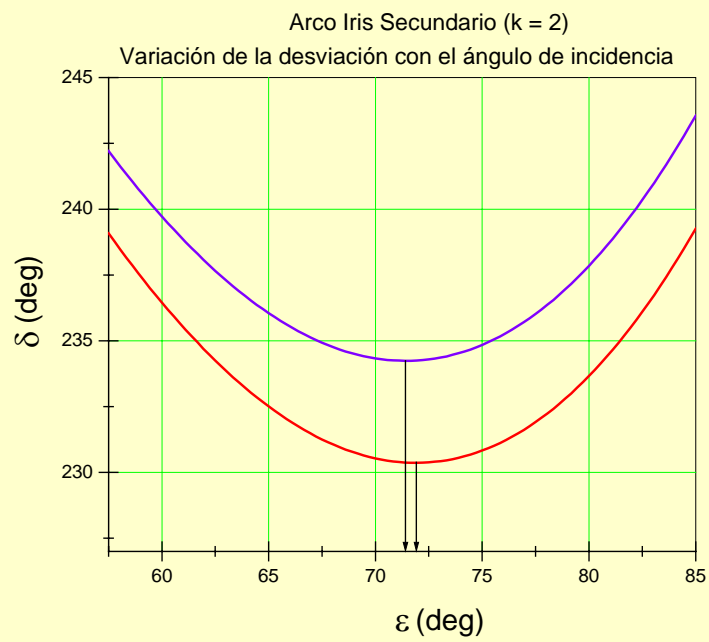
$$\alpha_p = 180 - \delta_p$$



## Desviación en arco secundario



$$\delta_s = 2\delta_1 + 2\delta_2 = 2\varepsilon + 360 - 6\varepsilon'$$



### Cálculo del ángulo de incidencia que hace mínima a la desviación

$$\delta = 2\delta_1 + k\delta_2$$

$$\delta = 2\varepsilon + 180k - (2 + 2k)\varepsilon'$$

$$\varepsilon' = \text{arc sen} \left( \frac{\text{sen } \varepsilon}{n} \right)$$

$$\delta' = 2 - (2 + 2k) \frac{(\cos \varepsilon_0)}{n \sqrt{1 - (\text{sen}^2 \varepsilon_0 / n^2)}} = 0$$

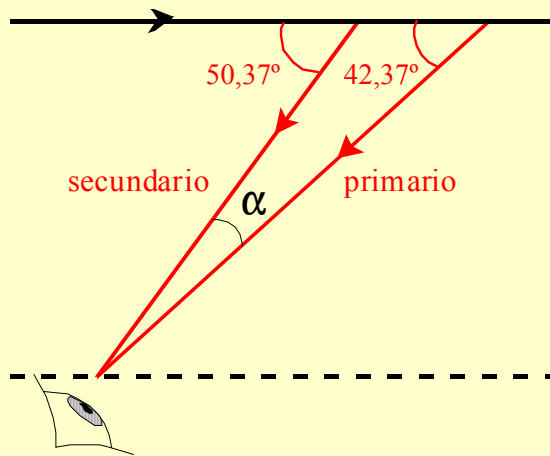
$$\cos \varepsilon_0 = \sqrt{\frac{n^2 - 1}{k^2 + 2k}}$$

**k = n° de reflexiones internas**  
**Arco primario: k = 1**  
**Arco secundario: k = 2**

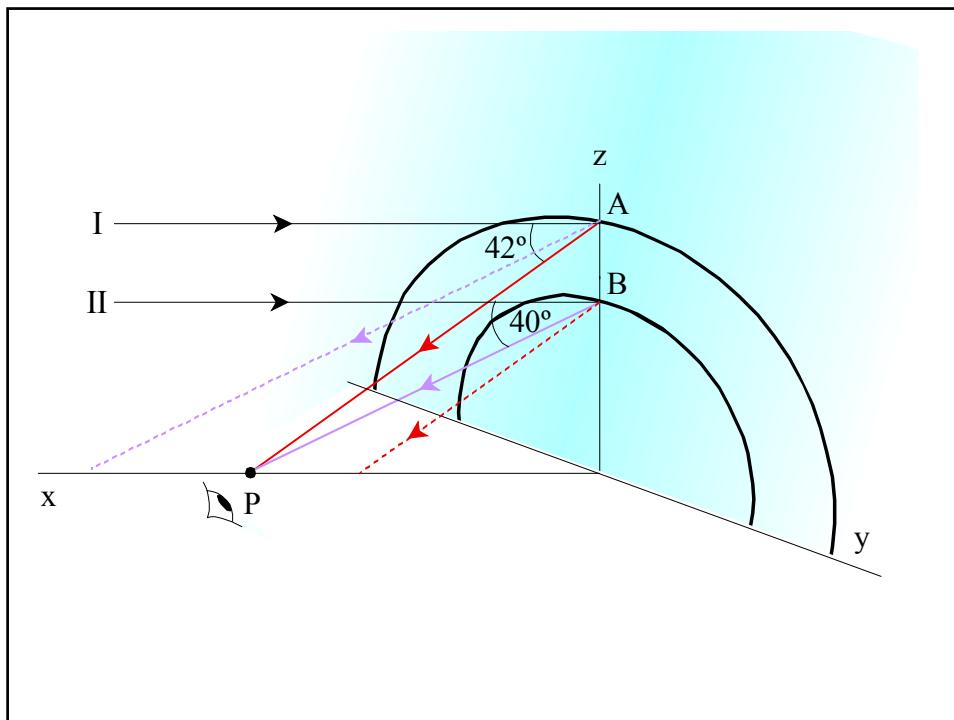
### VALORES MÍNIMOS DE LA DESVIACIÓN

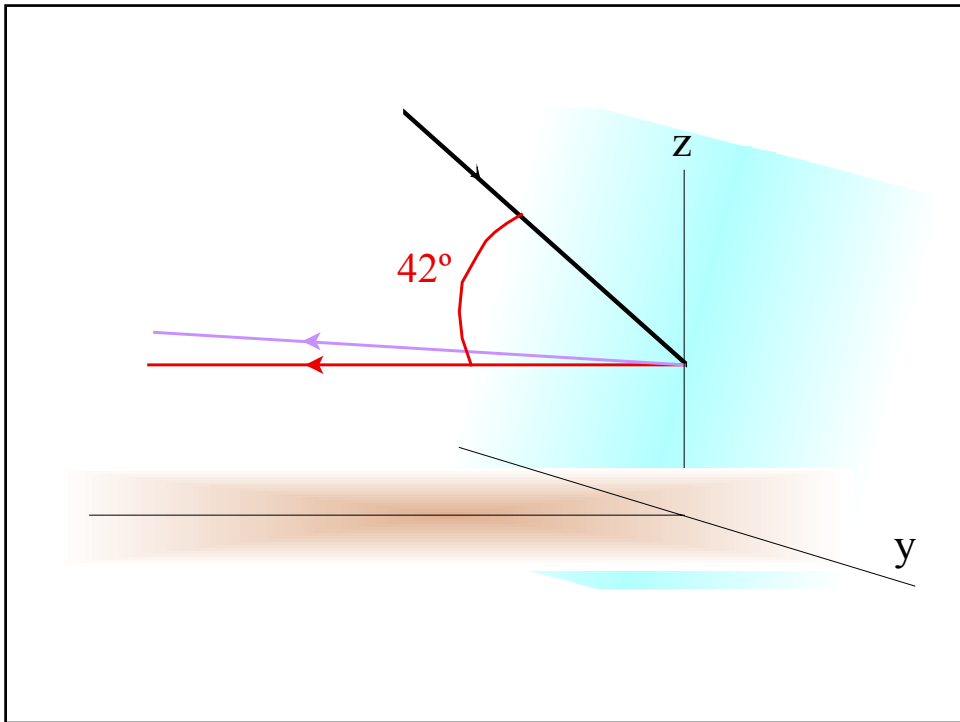
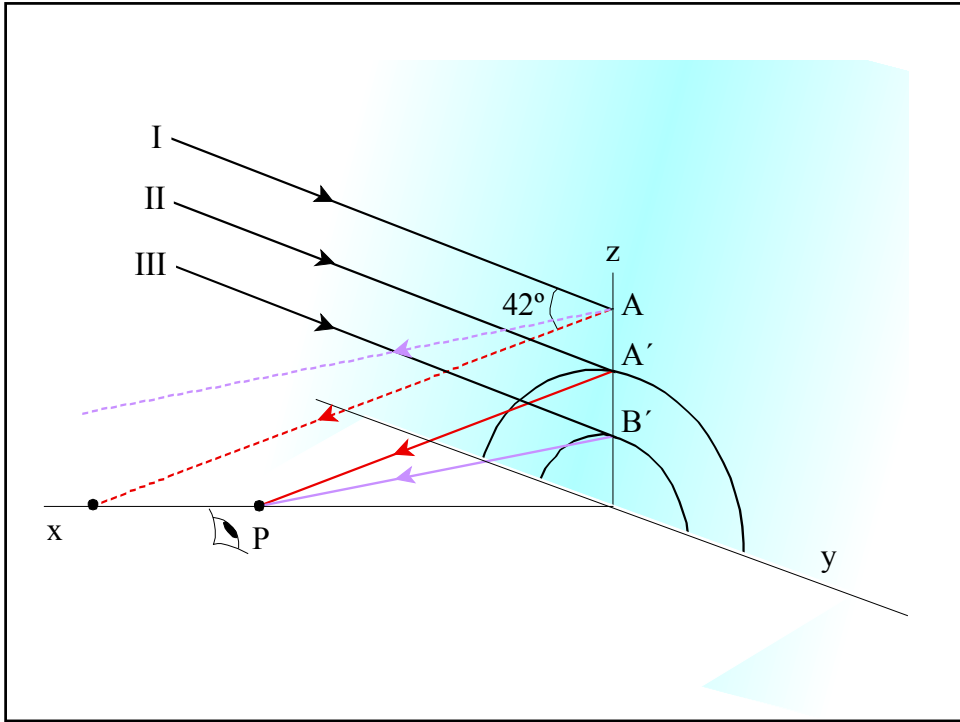
	k	Color	n	$\varepsilon_0$	$\varepsilon_0'$	$\delta_0$	$\alpha_p = 180 - \delta_0$ $\alpha_s = \delta_0 - 180$
<b>Arco Primario</b>	1	<b>Rojo</b>	1.331	59.53	40.35	137.63	42.37
		Violeta	1.346	58.65	39.38	139.77	40.23
<b>Arco Secundario</b>	2	<b>Rojo</b>	1.331	71.91	45.57	230.37	50.37
		Violeta	1.346	71.43	44.77	234.24	54.24

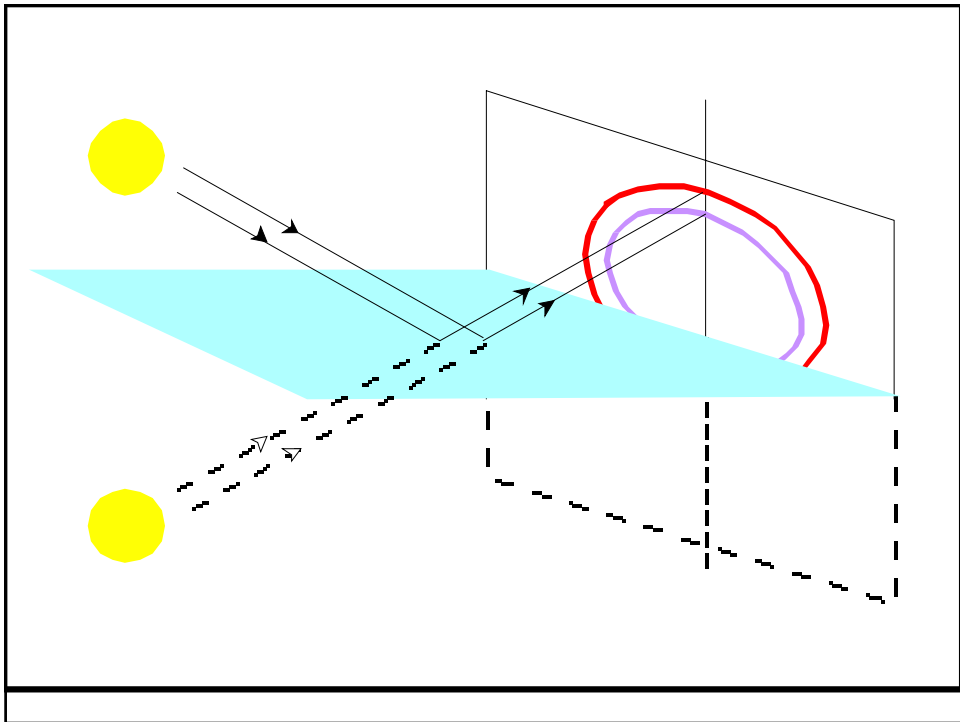
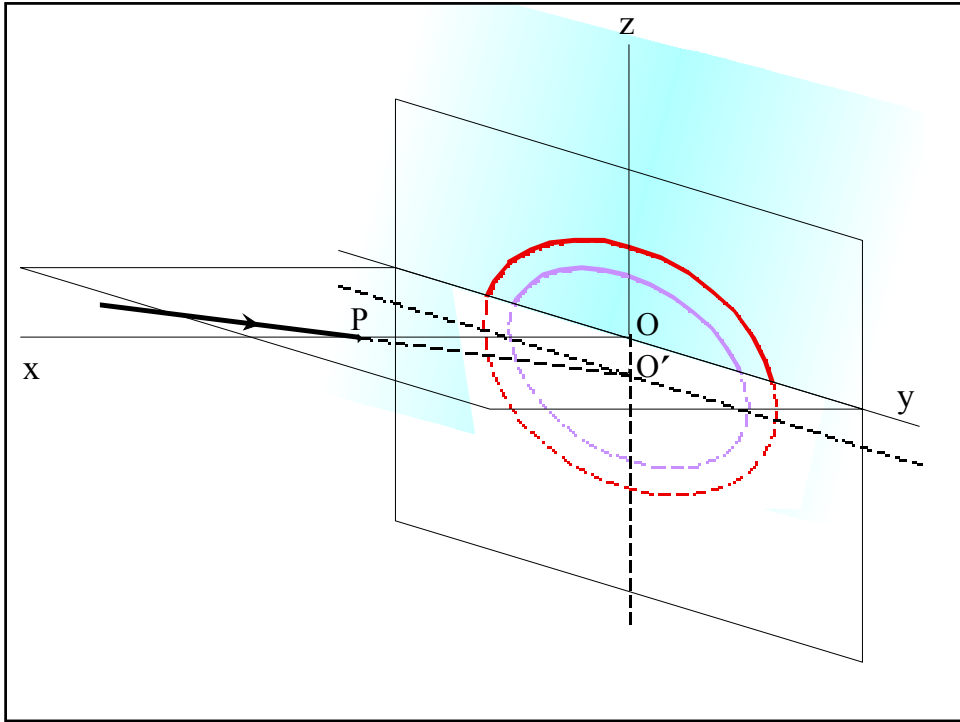
**Distancia angular entre el arco  
primario y el secundario**

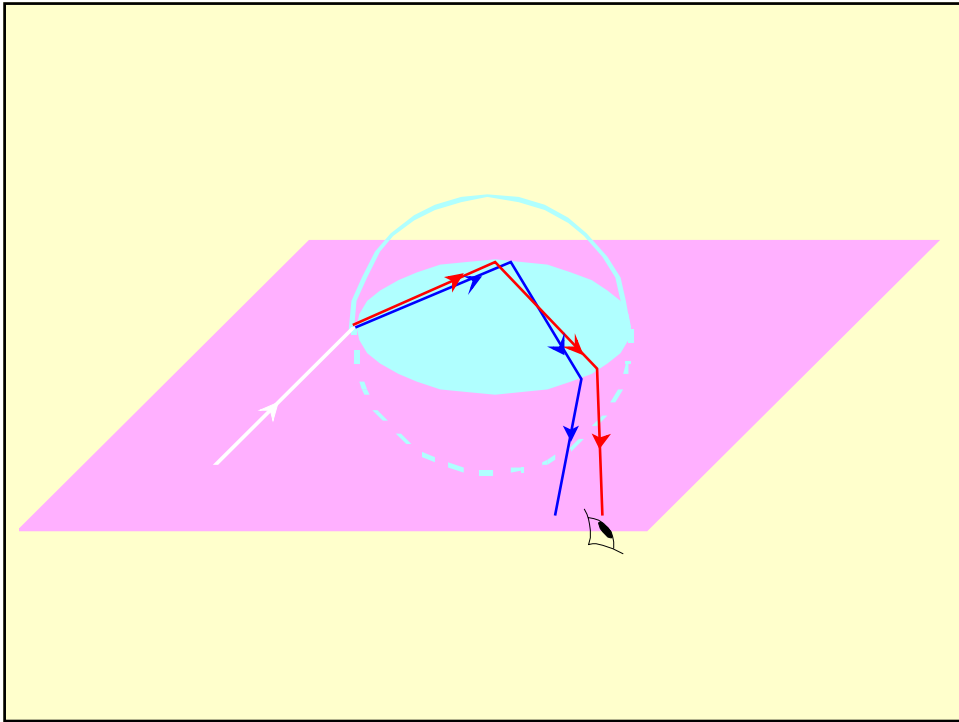
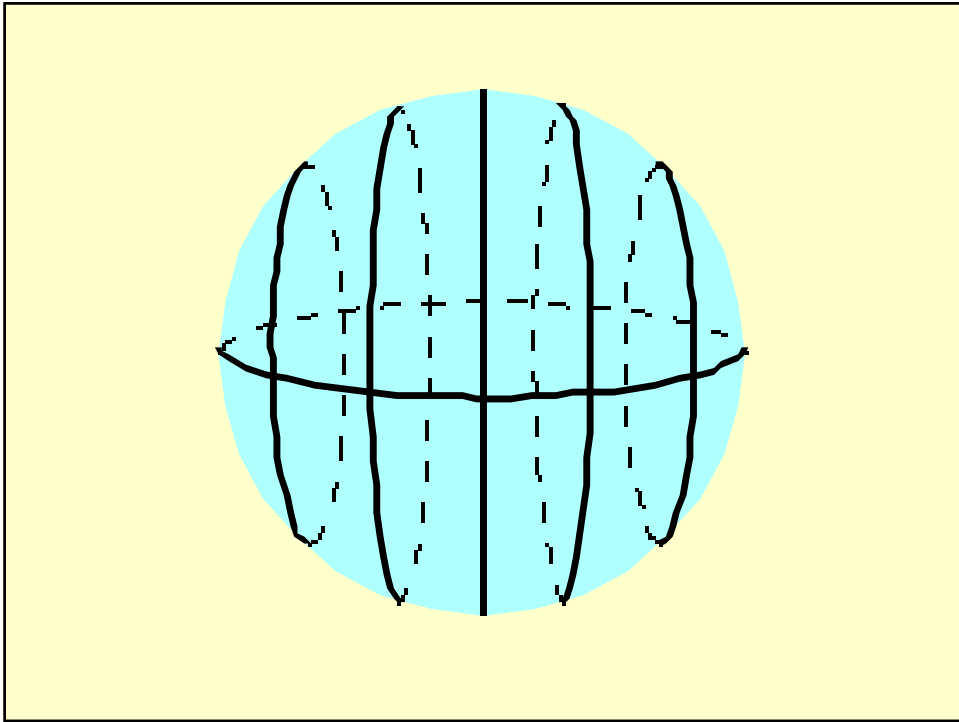


$$\alpha = 50,37 - 42,37 = 8,00^\circ$$









Lo celebraré si has apreciado  
en este trabajo  
una calidad didáctica  
muy superior  
a su escasa calidad técnica.

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Universidad de Alicante

Abril/2004

**FIN**