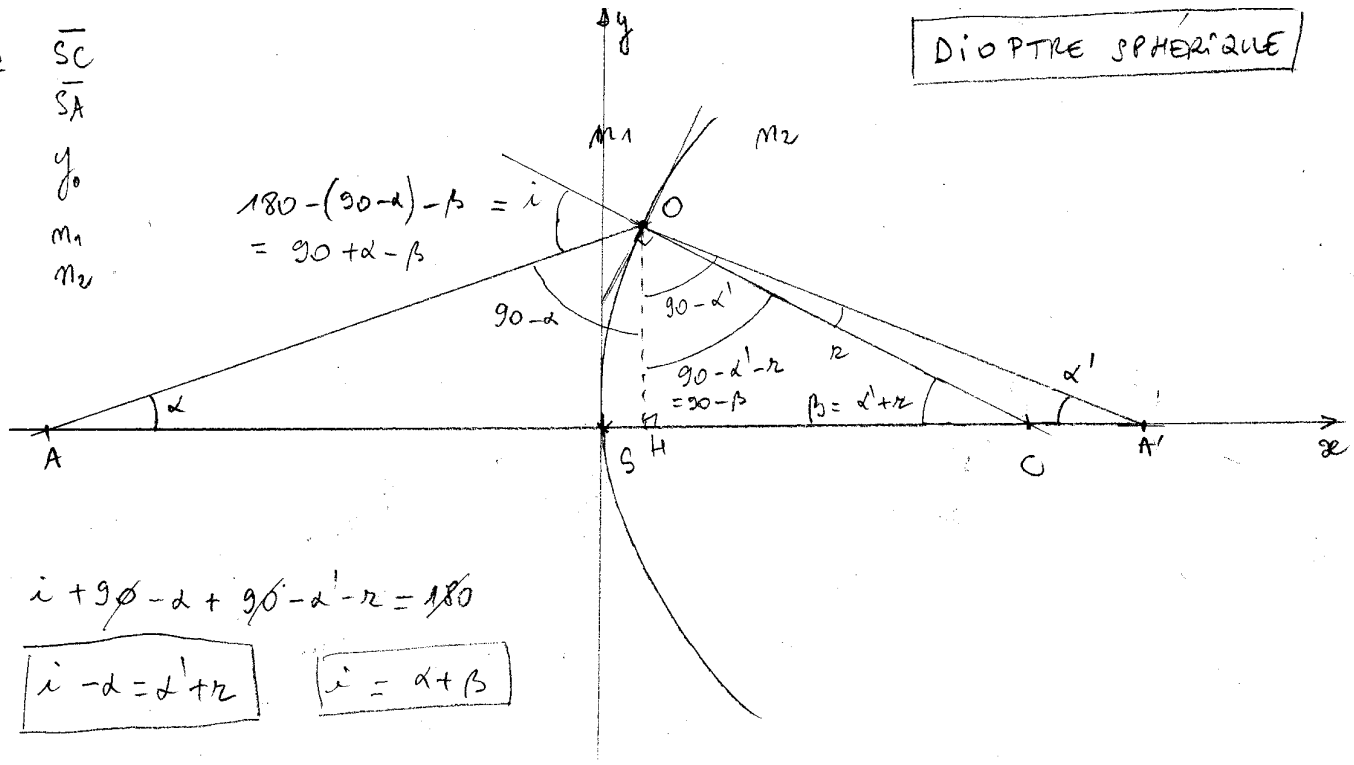
DIOPTRE SPHÉRIQUE

données $\overline{SC}$, $\overline{SA}$, y_0, n_1, n_2



$i + 90 - \alpha + 90 - \alpha' - r = 180$

$\boxed{i - \alpha = \alpha' + r}$ $\boxed{i = \alpha + \beta}$

$n_1 \sin i = n_2 \sin r$

EXCEL :

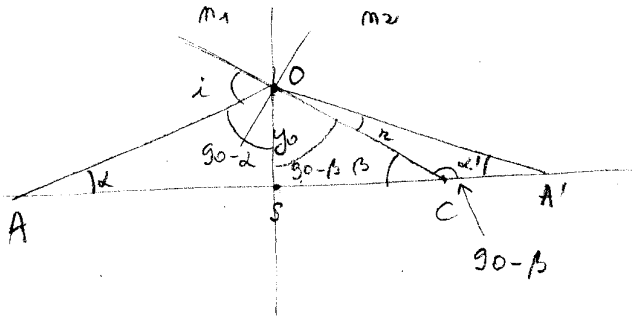
$\left.\begin{matrix}\overline{SA}\\ y_0\end{matrix}\right\} \rightarrow x_0 \rightarrow \left\{\begin{matrix}\overline{SH}\\ \tg\alpha \rightarrow \alpha\\ \tg\beta \rightarrow \beta\\ i\end{matrix}\right. \rightarrow \left\{\begin{matrix}\sin r = \frac{n_1}{n_2}\sin i \rightarrow r\\ \alpha' = \beta - r\end{matrix}\right. \rightarrow \overline{SA'} = \frac{\tg\alpha'}{y_0}$

Approximations

si y_0 très petit devant SC

$\tg\alpha \approx \alpha$ et $\tg\alpha' \approx \alpha'$; $SH \approx 0$

$\tg\beta \approx \beta$ $\sin i \approx i$ $\sin r \approx r$ $x_0 \approx 0$



$i + 90 - \alpha + 90 - \beta = 180$

$i = \alpha + \beta$

$i = \frac{y_0}{SA} + \frac{y_0}{SC}$

$n_1 \sin i = n_2 \sin r$

$n_1 \times i = n_2 \times r$

$n_1 y_0 \left(\frac{1}{SA} + \frac{1}{SC}\right) = n_2 \times r$

$\alpha' + 90 + 90 - \beta + r = 180$

$r = \beta - \alpha'$

$r = \frac{y_0}{SC} - \frac{y_0}{SA'}$

$n_1 y_0 \left(\frac{1}{SA} + \frac{1}{SC}\right) = n_2 y_0 \left(\frac{1}{SC} - \frac{1}{SA'}\right)$

$\frac{n_1}{SA} + \frac{n_2}{SA'} = \frac{n_2 - n_1}{SC} \rightarrow \frac{n_2}{\overline{SA'}} - \frac{n_1}{\overline{SA}} = \frac{n_2 - n_1}{\overline{SC}}$