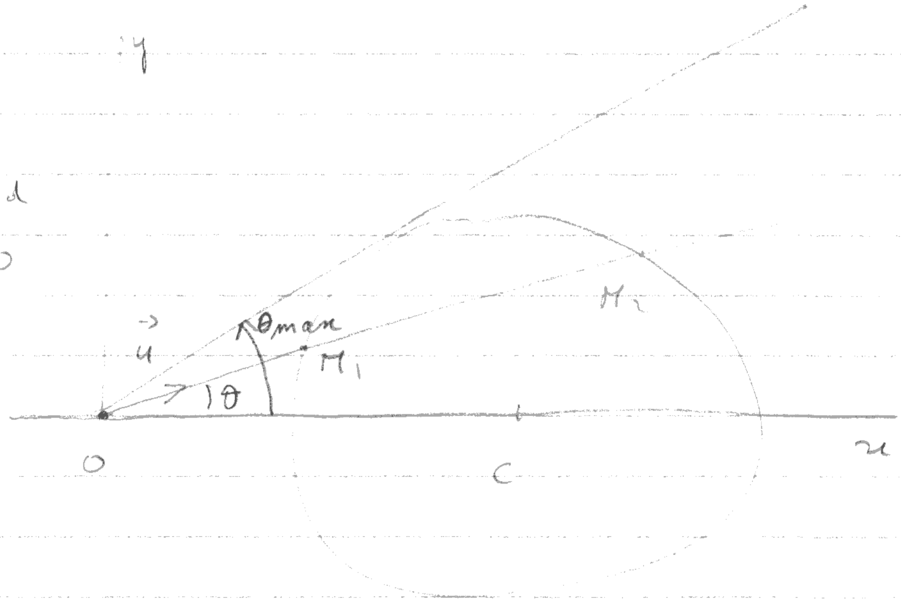
Absorption par une sphère, source extérieure

$\vec{OM} = \lambda \vec{u} \begin{vmatrix} \lambda \cos\theta \\ \lambda \sin\theta \end{vmatrix}$



$CM^2 = R^2$

$(\vec{CO} + \vec{OM})^2 = R^2 \qquad \vec{CO} \begin{vmatrix} -d \\ 0 \end{vmatrix}$

$d^2 - 2\lambda d \cos\theta + \lambda^2 = R^2$

$\Delta = 4d^2\cos^2\theta - 4(d^2 - R^2)$

$= -4d^2\sin^2\theta + 4R^2$

$= 4(R^2 - d^2\sin^2\theta)$

$$\lambda = \frac{2d\cos\theta \pm \sqrt{\Delta}}{2}$$

$$= d\cos\theta \pm \sqrt{R^2 - d^2\sin^2\theta}$$

$\cos\theta \geq 0 \qquad \lambda_1 = d\cos\theta - \sqrt{R^2 - d^2\sin^2\theta}$

$d \geq 0 \qquad \lambda_2 = \text{''} + \text{''}$

$\Rightarrow M_1M_2 = 2\sqrt{R^2 - d^2\sin^2\theta}$

Tirer selon $\operatorname{acos}\left[x(-1 + \cos\theta_{max}) + 1\right]$ avec $x = alea()$