OA1DELTAFfS

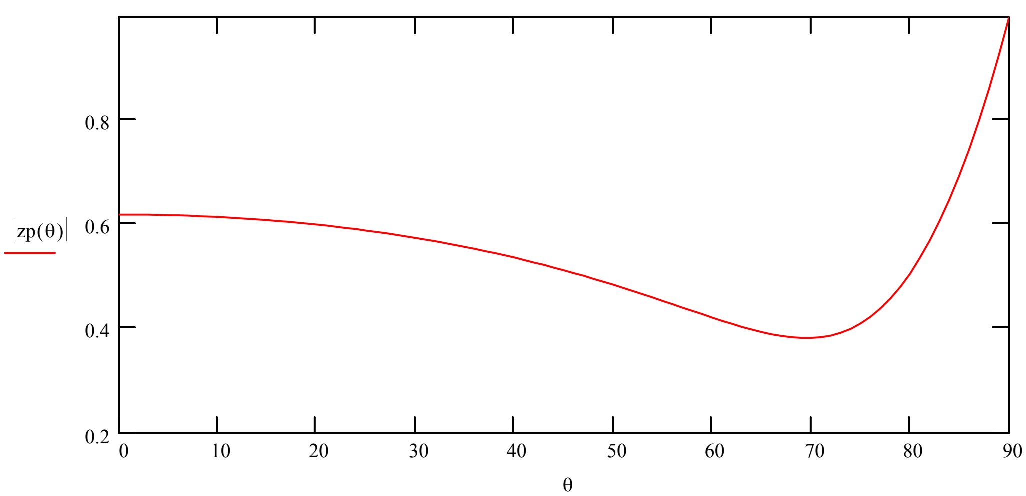
Calculation of ratio of real part r of the parallel (p) and perpendicular (s) case, and the difference of the arguments of Fresnel's formulas with absorption.

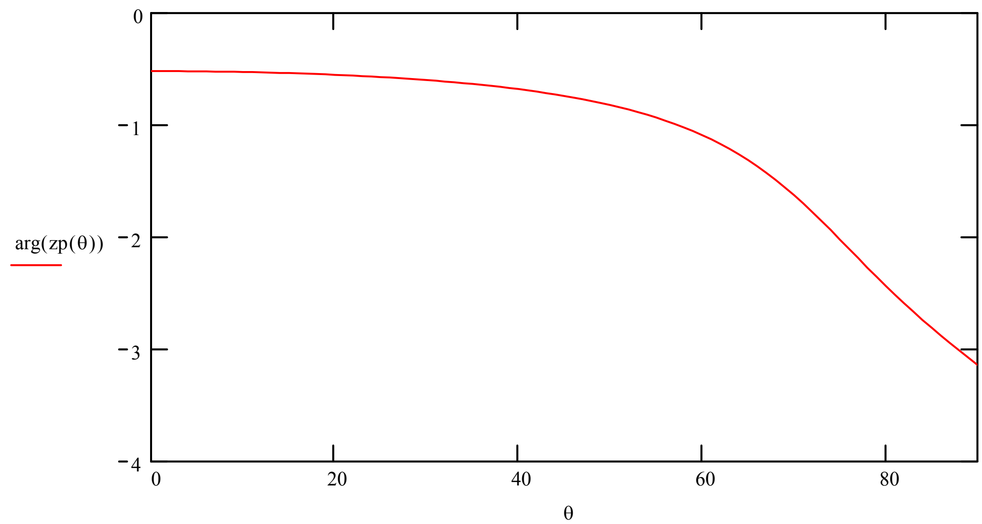
For values of K we calculate the absolute values of zp = rp exp iδp and zs = rs exp iδs and the argument as function of θ.

$$\theta := 0, 1 .. 90 \qquad\qquad i := \sqrt{-1}$$

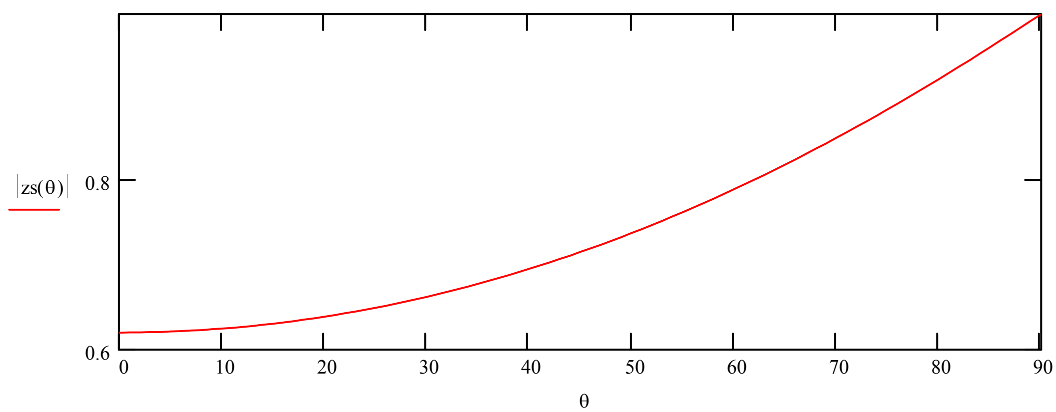
$$zp(\theta) := \frac{(n - i\cdot K)\cdot\cos\left(2\cdot\pi\cdot\frac{\theta}{360}\right) - \sqrt{1 - \frac{\sin\left(2\cdot\pi\cdot\frac{\theta}{360}\right)^2}{(n - i\cdot K)^2}}}{\left[(n - i\cdot K)\cdot\cos\left(2\cdot\pi\cdot\frac{\theta}{360}\right)\right] + \sqrt{1 - \frac{\sin\left(2\cdot\pi\cdot\frac{\theta}{360}\right)^2}{(n - i\cdot K)^2}}}$$

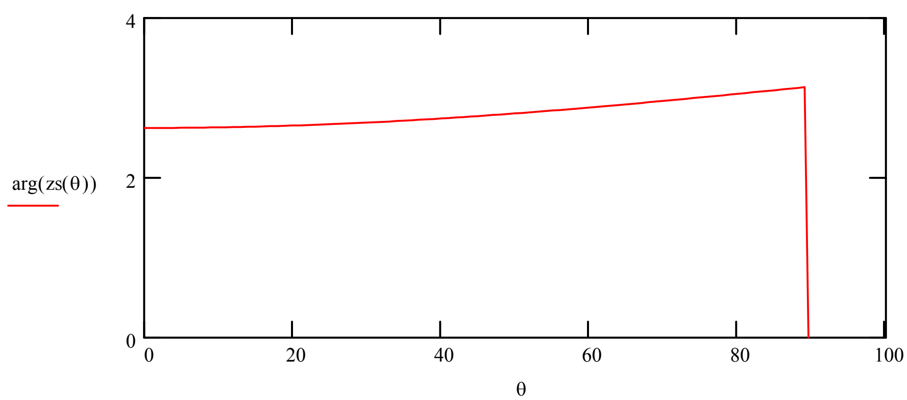
$$zs(\theta) := \frac{\cos\left(2\cdot\pi\cdot\frac{\theta}{360}\right) - (n - i\cdot K)\cdot\sqrt{1 - \frac{\sin\left(2\cdot\pi\cdot\frac{\theta}{360}\right)^2}{(n - i\cdot K)^2}}}{\cos\left(2\cdot\pi\cdot\frac{\theta}{360}\right) + (n - i\cdot K)\cdot\sqrt{1 - \frac{\sin\left(2\cdot\pi\cdot\frac{\theta}{360}\right)^2}{(n - i\cdot K)^2}}}$$



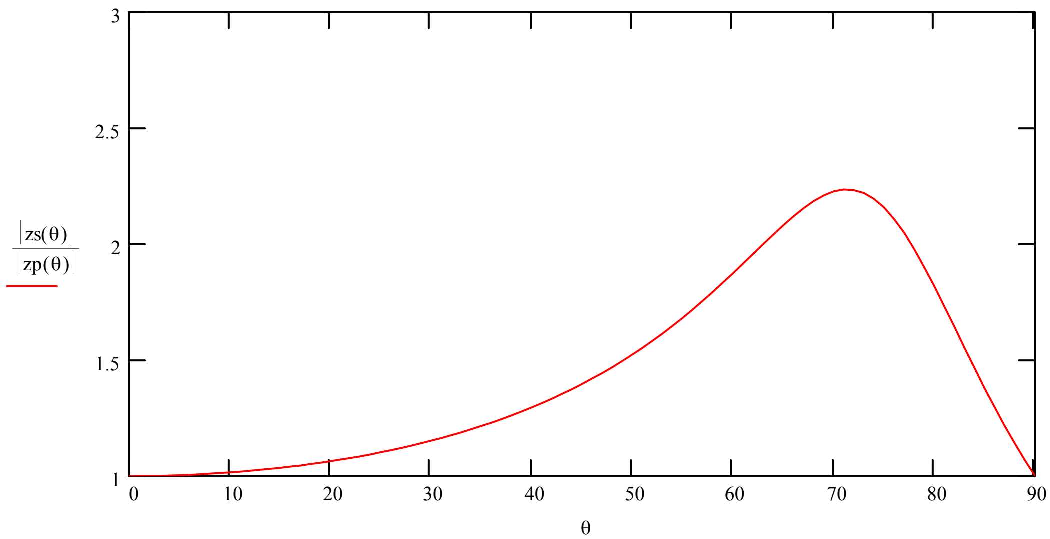


$n \equiv 2 \qquad K \equiv 2$

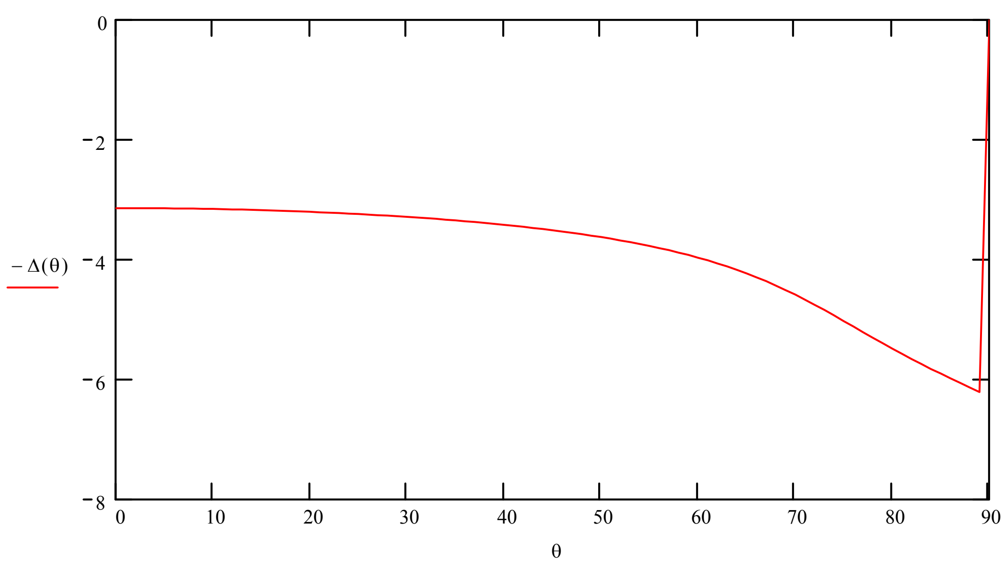




The ratio of the absolute value of zs/zp, that is P = tanψ and the difference of the arguments of zs and zp, that is Δ. (parallel (p), perpendicular (s))



$$\Delta(\theta) := \arg(zs(\theta)) - \arg(zp(\theta))$$



$$\psi(\theta) := \operatorname{atan}\left(\frac{|zs(\theta)|}{|zp(\theta)|}\right)$$