M7FREVA. **Penetration into the less dense medium at total reflection.**

Exponential factor for decrease of amplitude into the less dense medium with -Y for two different refractive indices:

θc is the critical angle

Different refractive indices. The value "a" is used to "be off" the critical angle

First we set $a \equiv 2$ $n1 \equiv 1.5$ $n2 \equiv 1$ $\lambda := .0005$ $nn1 \equiv 3.4$ $nn2 \equiv 1$

$$z := \operatorname{asin}\left(\frac{n2}{n1}\right) \qquad zz := \operatorname{asin}\left(\frac{nn2}{nn1}\right) \qquad Y := -0.00005, -.0001 .. -.001$$

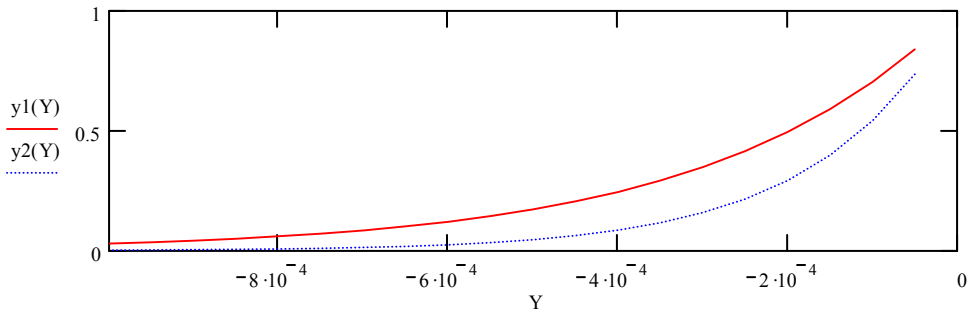
$$\theta 1c := z \cdot \frac{360}{2 \cdot \pi} \qquad \theta 2c := zz \cdot \frac{360}{2 \cdot \pi}$$

$\theta 1c = 41.81$ $\theta 2c = 17.105$

$$\theta 1 := \theta 1c + 2 \qquad \theta 2 := \theta 2c + a$$

$$k2 := 2 \cdot \frac{\pi}{\lambda} \cdot n2 \qquad A := 1 \qquad kk2 := 2 \cdot \frac{\pi}{\lambda} \cdot nn2$$

$$y1(Y) := A \cdot e^{Y \cdot k2 \cdot \sqrt{\left(n1 \cdot \frac{\sin\left(\frac{2 \cdot \pi}{360} \cdot \theta 1\right)}{n2}\right)^2 - 1}} \qquad y2(Y) := A \cdot e^{Y \cdot kk2 \cdot \sqrt{\left(nn1 \cdot \frac{\sin\left(\frac{2 \cdot \pi}{360} \cdot \theta 2\right)}{nn2}\right)^2 - 1}}$$



To study different angles, make refractive indices the same for both and change "a" to values larger than 2.