

$$\text{FullSimplify}\left[\pi R^2 \text{Hypergeometric0F1Regularized}\left[2, -\left(\frac{\pi R}{\lambda} \sin[\theta]\right)^2\right],\right.$$

$$\left.\{\theta, R, \lambda\} \in \text{Reals} \wedge \{R, \lambda\} > 0\right]$$

$$R \lambda \text{BesselJ}\left[1, \frac{2 \pi R \sin[\theta]}{\lambda}\right] \text{Csc}[\theta]$$