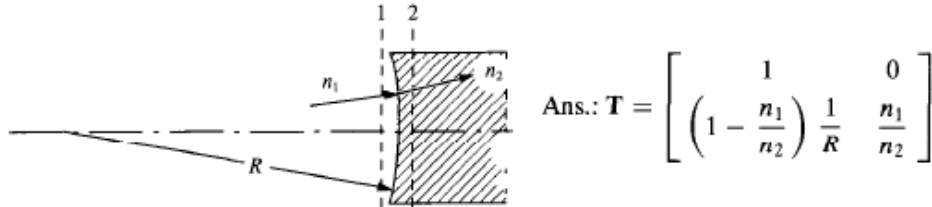


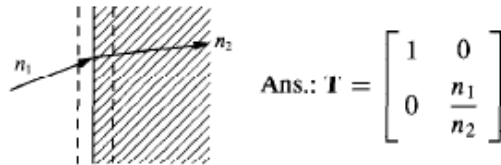
Laser Physics I (PHYS/ECE 464), Fall 2022
Homework #2, Due Monday, 9/12/22

From *Verdeyen (3rd Edition)*: Problems 2.1, 2.2, 2.3, 2.4, 2.6

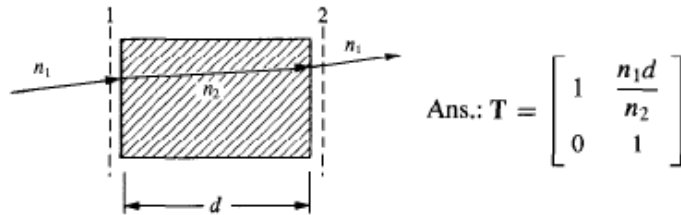
2.1. Derive the ray matrix for a ray entering a spherical dielectric interface.



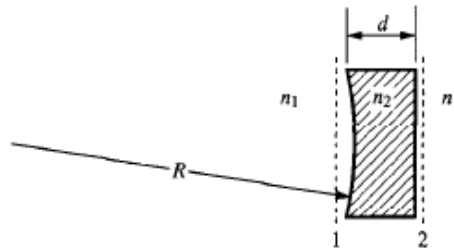
2.2. Derive the ray matrix for the plane dielectric interface.



2.3. Derive the ray matrix for the plane dielectric slab of thickness d .



2.4. Combine the results of problems 2.1 and 2.2 to derive the ray matrix for the negative lens. (Assume that $R \gg d$.)



2.6. Find the $ABCD$ matrix for the lens combination shown below.

