

Homework #1

1. Book problem 1.3
2. Book problem 1.4
3. Book problem 1.7
4. Using Maxwell's equations derive the following equation

$$E_\rho = \frac{j}{p^2} \left(\beta \frac{\partial E_z}{\partial \rho} + \mu \frac{\omega}{\rho} \frac{\partial H_z}{\partial \phi} \right)$$

5. Apply the boundary conditions to derive the matrix equation (see the notes)

$$[M]_{4 \times 4} \begin{bmatrix} A \\ B \\ C \\ D \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$