

# Problem set 09

## Problem 1

(a) Establish the relation between the two boundary conditions

$$\hat{\mathbf{a}}_{n2} \cdot (\mathbf{D}_1 - \mathbf{D}_2) = \sigma \quad \text{and} \quad \hat{\mathbf{a}}_{n2} \times (\mathbf{H}_1 - \mathbf{H}_2) = \mathbf{J}_s.$$

(b) Find the relation between the two boundary conditions

$$\hat{\mathbf{a}}_{n2} \cdot (\mathbf{B}_1 - \mathbf{B}_2) = 0 \quad \text{and} \quad \hat{\mathbf{a}}_{n2} \times (\mathbf{E}_1 - \mathbf{E}_2) = 0,$$

which are usually written as

$$E_{1t} = E_{2t} \quad \text{and} \quad B_{1n} = B_{2n}.$$

*The problem is due Monday March 17 2025 at 20:00*