Equations for Exam 1

Dielectrics

$$\vec{D} = \epsilon_0 \vec{E} + \vec{P}$$

$$\nabla \cdot \vec{D} = \rho_{free} \quad \text{and} \quad \nabla \cdot \vec{E} = \rho / \epsilon_0$$

$$\vec{D} = \epsilon \vec{E} \quad \text{and} \quad \vec{P} = \chi_e \vec{E} \epsilon_0$$

$$C = Q/V$$

Magnetism and Matter

$$\vec{H} = \frac{\vec{B}}{\mu_0} - \vec{M} \; ; \text{ or } \vec{B} = \mu_0 (\vec{H} + \vec{M})$$

$$\nabla \times \vec{H} = \vec{J}_{free} \quad \text{and} \quad \nabla \times \vec{B} = \mu_0 \vec{J}$$

$$\vec{B} = \mu \vec{H} \quad \text{and} \quad \vec{M} = \chi_m \vec{H}$$

B_n is continuous ;

$$\Delta \vec{H}_t = \vec{K}_{free} \times \hat{n} \quad \text{and} \quad \Delta \vec{B}_t = \mu_0 \vec{K} \times \hat{n}$$