

Homework Assignment #6
22.105
Electromagnetic Interactions
Fall 2005

Distributed: November 28, 2005

Due: December 5, 2005

1. Calculate the dispersion relation for a slab waveguide made up of permeable material with relative permeability $\mu_r = \mu / \mu_0$. Assume $\epsilon_r = 1$. Do we need $\mu_r > 1$ or $\mu_r < 1$ for propagation.
2. Consider a semi-infinite slab of permeable material characterized by $\mu_r > 1$, $\epsilon_r = 1$. Is there a "Brewster angle" for TE or TM waves? If so, calculate its value. π