EE351 / Fall 2004	Home work # 1	Due: Wednesday 9/01/04

I. Text Book::

9 .23, 9.32, 9.33, 10.1, 10. 3, 10.10

II:

(1) Two linearly polarized waves propagating in the same direction at the same frequency are given by:

$$E_1(y) = \hat{a}_x D_1 e^{-j\beta y}$$

$$E_2(y) = \hat{a}_y D_2 e^{-j\beta y} e^{j\theta}$$

where D_1 and D_2 and θ are constants and $\beta = \omega\sqrt{\mu\varepsilon}$. Find:

(1) the polarization and direction of propagation of E_1 and E_2

(2) the polarization of the sum of these two waves in the following cases:

a. $\theta = 0$; b. $\theta = \pi/2$; c. $\theta = \pi/2$; $D_1 = D_2$; d. $\theta = \pi$