

## ECE 3025 Homework 12: Plane Waves

Due Date: never

1. Write the equation for  $\vec{H}(\vec{r})$ , the direction of arrival in spherical coordinates  $(\phi, \theta)$ , and the wavelength for the following plane waves. Assume free space permeability and permittivity:

(a)  $\vec{E}(\vec{r}) = 1 \times 10^{-4} \hat{x} \exp(j [\frac{\pi}{3} - 0.1 \hat{y} \cdot \vec{r}]) \mu\text{V/m}$

(b)  $\vec{E}(\vec{r}) = 2 \times 10^{-5} \hat{y} \exp(j \frac{2\pi}{7\sqrt{2}} [\hat{x} + \hat{z}] \cdot \vec{r}) \mu\text{V/m}$