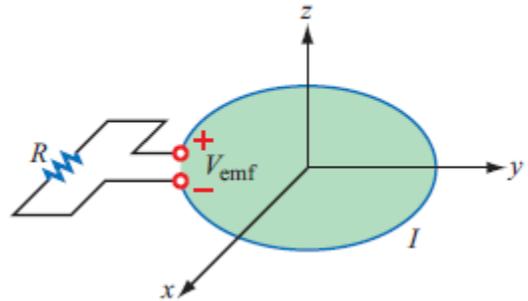


**Problem # 1 (25 Points) 6.2**

The loop in the figure is in the x-y plane.  $\vec{B} = \hat{z}B_0 \cos \omega t$  with  $B_0$  positive. What is direction of  $I$  ( $\hat{\phi}$  or  $-\hat{\phi}$ ) at  $\omega t = \pi/6$ .



**Problem # 2 (25 Points) 6.25**

The Electric field in a dielectric material is given by  $\vec{E}(y,t) = \hat{x}2\sin(\omega t + \pi y)$ . Find associated magnetic field  $\vec{H}$ .

**Problem # 3 (25 Points) 7.12**

The Electric field in air is given by

$$\vec{E}(z,t) = \hat{x}2\sin(\omega t + \pi z - 45^\circ) - \hat{y}2\cos(\omega t + \pi z) \quad (V/m)$$

Determine the polarization angles ( $\gamma, \chi$ ) and the direction of dfrotation.

**Problem # 4 (25 Points) 8.2b**

