

87.  $\vec{E} \times \vec{B} = \mu_0 \vec{S}$ , where  $\vec{E} = E \hat{k}$  and  $\vec{S} = S(-\hat{j})$ . One can verify easily that since  $\hat{k} \times (-\hat{i}) = -\hat{j}$ ,  $\vec{B}$  has to be in the negative  $x$  direction. Also,

$$B = \frac{E}{c} = \frac{100 \text{ V/m}}{3.0 \times 10^8 \text{ m/s}} = 3.3 \times 10^{-7} \text{ T} .$$