

9. Since the  $\vec{E}$ -wave oscillates in the  $z$  direction and travels in the  $x$  direction, we have  $B_x = B_z = 0$ . With SI units understood, we find

$$\begin{aligned} B_y &= B_m \cos \left[ \pi \times 10^{15} \left( t - \frac{x}{c} \right) \right] = \frac{2.0 \cos[10^{15} \pi (t - x/c)]}{3.0 \times 10^8} \\ &= (6.7 \times 10^{-9}) \cos \left[ 10^{15} \pi \left( t - \frac{x}{c} \right) \right] \end{aligned}$$