Pb. 1-14

Pb

EM-våg => $v = c = 3 \cdot 10^8$ m/s

utbredning längs x-axeln (pos eller minus ?)

$\lambda = 500$ nm (blå-grönt)

$\vec{E}$ mot längs y-axeln

"Instrålad" = Irradians (i detta fallet)

synonymt med $[W/m^2]$, $E_e = 0,1$ W/m²

Allmänt:

$$\begin{cases} \vec{E} = \vec{E}_0 \cdot \sin(kx \mp \omega t) \\ \vec{B} = B_0 \cdot \sin(kx \mp \omega t) \end{cases}$$

$k = \frac{2\pi}{\lambda} = 1,26 \cdot 10^7$ m^{-1}

$\omega = kc$ $\left(c = \lambda \cdot \nu = \frac{2\pi}{k} \cdot \frac{\omega}{2\pi} = \frac{\omega}{k} \right)$

$\omega = 3,77 \cdot 10^{15}$ rad/s

$E_{0z} = E_{0x} = 0$ => $B_y = B_x = 0$

$E_e = \frac{1}{2} c \varepsilon_0 E_0^2$, $\varepsilon_0 = 8,85 \cdot 10^{-12}$ F/m

$E_{0y} = \sqrt{\frac{2E_e}{c \varepsilon_0}} = 9$ V/m

$E_0 = c B_0$

=> $B_{0z} = \frac{E_{0y}}{} \quad 3 \cdot 10^{-8}$ T

AIUTO :

$$\begin{cases} \vec{E}(\vec{r},t) = 9\,\hat{y}\,\sin\left(1.26\cdot 10^{7}\,x - 3.77\cdot 10^{15}\,t\right) \ \text{V/m} \\ \vec{B}(\vec{r},t) = 3\cdot 10^{-8}\,\hat{z}\,\sin\left(1.26\cdot 10^{7}\,x - 3.77\cdot 10^{15}\,t\right) \ \text{T} \end{cases}$$