

9.5 Here is a particular electromagnetic field in free space:

$$E_x = 0 \quad E_y = E_0 \sin(kx + \omega t) \quad E_z = 0$$

$$B_x = 0 \quad B_y = 0 \quad B_z = -E_0 \sin(kx + \omega t)$$

(a) Show that this field can satisfy Maxwell's equations if ω and k are related in a certain way.