In vacuum, which color of light travels with the highest speed?

(a) red
(b) green
(c) blue
(d) x-rays
(e) they are all the same.
Given the plane waves described by:

$$E_x(z,t) = E_{\text{max}} \cos(kz - \omega t)$$
$$B_y(z,t) = B_{\text{max}} \cos(kz - \omega t)$$

In which direction does energy flow?

a) There is no energy flow
b) x
c) y
d) -y
e) z
The Intensity of an EM wave is:

a) the average energy in a wave
b) the instantaneous energy in a wave
c) the average momentum flowing through a unit area per unit time
d) the average energy flowing through a unit area per unit time
If an EM wave has electric field

\[ E_y(x,t) = E_{\text{max}} \cos(kx + \omega t) \]

What is the B field?

(a) \( B_x(x,t) = B_{\text{max}} \cos(kx - \omega t) \)

(b) \( B_y(x,t) = B_{\text{max}} \cos(kx - \omega t) \)

(c) \( B_z(x,t) = -B_{\text{max}} \cos(kx + \omega t) \)

(d) \( B_z(x,t) = B_{\text{max}} \cos(kx + \omega t) \)
For the reflected wave shown on the board, what direction does the Poynting vector point at A?

a) $-\hat{i}$

b) $\hat{i}$

c) $\hat{k}$

d) It depends
In a material with index of refraction $n>1$, the wavelength is:

a) the same as in vacuum

b) greater than in vacuum

c) less than in vacuum