CH1010-117-ADB

25 AUG. 2017

C: SPEED OF PROP.

$= \lambda \nu$

ν FREQUENCY

ENERGY

$E \propto \nu$ OF LIGHT

$\propto \frac{c}{\lambda}$

SLIDE 8 ... WHAT ENERGY CORRESPONDS TO 750 nm (RED) LIGHT?
400 nm (VIOL.) LIGHT?

$$E = \frac{hc}{\lambda} = \frac{6.626 \times 10^{-34}\ \text{J}\cancel{\text{s}} \times 2.998 \times 10^{8}\ \frac{\cancel{\text{m}}}{\cancel{\text{s}}}}{750\ \cancel{\text{nm}} \times \frac{1 \times 10^{-9}\ \cancel{\text{m}}}{1\ \cancel{\text{nm}}}}$$

$$= 2.65 \times 10^{-19}\ \text{J} \times \frac{1\ \text{eV}}{1.602 \times 10^{-19}\ \text{J}}$$

$$= 1.66\ \text{eV}$$

$$\frac{1}{\lambda} = \frac{0.01097}{\text{nm}} \left(\frac{1}{3^2} - \frac{1}{n^2} \right) \quad \text{FOR } n=4 \ldots$$

$$= \frac{0.01097}{\text{nm}} \left(\frac{1}{9} - \frac{1}{16} \right)$$

$$= \frac{0.01097}{\text{nm}} \left(\frac{7}{16} \right)$$

$$\lambda = 1875\ \text{nm}$$