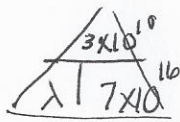


⑦ $\nu \uparrow \lambda \downarrow$ look for shorter wavelength
521 nm

⑧ $\lambda \uparrow \nu \downarrow$ look for lowest frequency

$4.5 \times 10^{14} \text{ Hz}$

⑨ * $3.00 \times 10^{10} \text{ cm/s}$
 answer needs to be in cm



$= 4.29 \times 10^{-7} \text{ cm}$

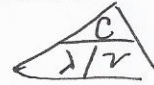
Remember

$E \uparrow \nu \uparrow$ direct

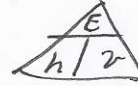
$\lambda \downarrow \nu \uparrow$ inverse

$E \uparrow \lambda \downarrow$ inverse

$C = \lambda \nu$



$E = h \nu$



$E = \text{energy J}$

$h = \text{plank's constant } 6.626 \times 10^{-34} \text{ J}\cdot\text{s}$

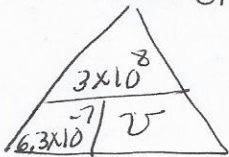
$c = \text{speed of light}$
 $3.00 \times 10^8 \text{ m/s OR}$
 $3.00 \times 10^{10} \text{ cm/s}$

$\lambda = \text{wavelength m, cm, nm}$

$\nu = \text{frequency Hz or } \frac{1}{\text{sec}}$
 or sec^{-1}

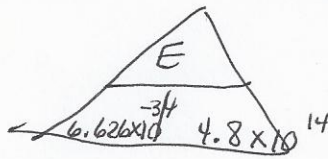
⑩ $4.29 \times 10^{-7} \text{ cm} \left| \frac{1 \text{ m}}{100 \text{ cm}} \right| \left| \frac{1 \times 10^9 \text{ nm}}{1 \text{ m}} \right| = 4.29 \text{ nm}$; no - the light is not visible.
 Visible light is from 400 nm - 700 nm

⑪ $E = x$
 $\lambda = 630 \text{ nm}$
 1st solve for frequency



$= 4.8 \times 10^{14} \text{ Hz}$

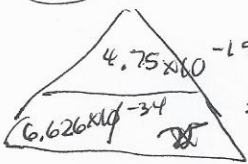
2nd solve for Joules/Energy



$E = h \nu$

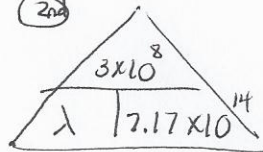
$E = (6.626 \times 10^{-34})(4.8 \times 10^{14}) = 3.2 \times 10^{-19} \text{ J}$

⑫ (1st)



$= 7.17 \times 10^{14} \text{ Hz}$

(2nd)



$= 4.18 \times 10^{-7} \text{ m}$

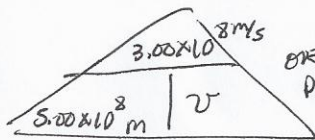
$= 418 \text{ nm} = \text{VIOLET}$

look at table on lab

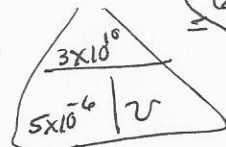
⑬ $E \downarrow \lambda \uparrow$ look for lower energy
 $3.01 \times 10^{-19} \text{ J}$

⑭ has typo $\rightarrow 4.62 \times 10^{16}$ should be 4.62×10^{14} ughh 649; orange

⑮ $5.00 \times 10^{-6} \text{ cm} \rightarrow \text{convert to meters}$
 $5.00 \times 10^{-6} \text{ cm} \left| \frac{1 \text{ m}}{100 \text{ cm}} \right| = 5 \times 10^{-8}$



OR point convert



15
 $6.00 \times 10^8 \text{ Hz}$