

(6.22b) 0.1 mole of photons = _____ J

(a) $f = 5.09 \times 10^{14} \text{ sec}^{-1}$

$E = hf$

$= (6.63 \times 10^{-34}) (5.09 \times 10^{14})$

$= 3.37 \times 10^{-19} \text{ J}$

$\times \frac{6 \times 10^{23} \text{ photons}}{1 \text{ mole}} \times 0.1 =$

20220 J = (20.2 kJ)

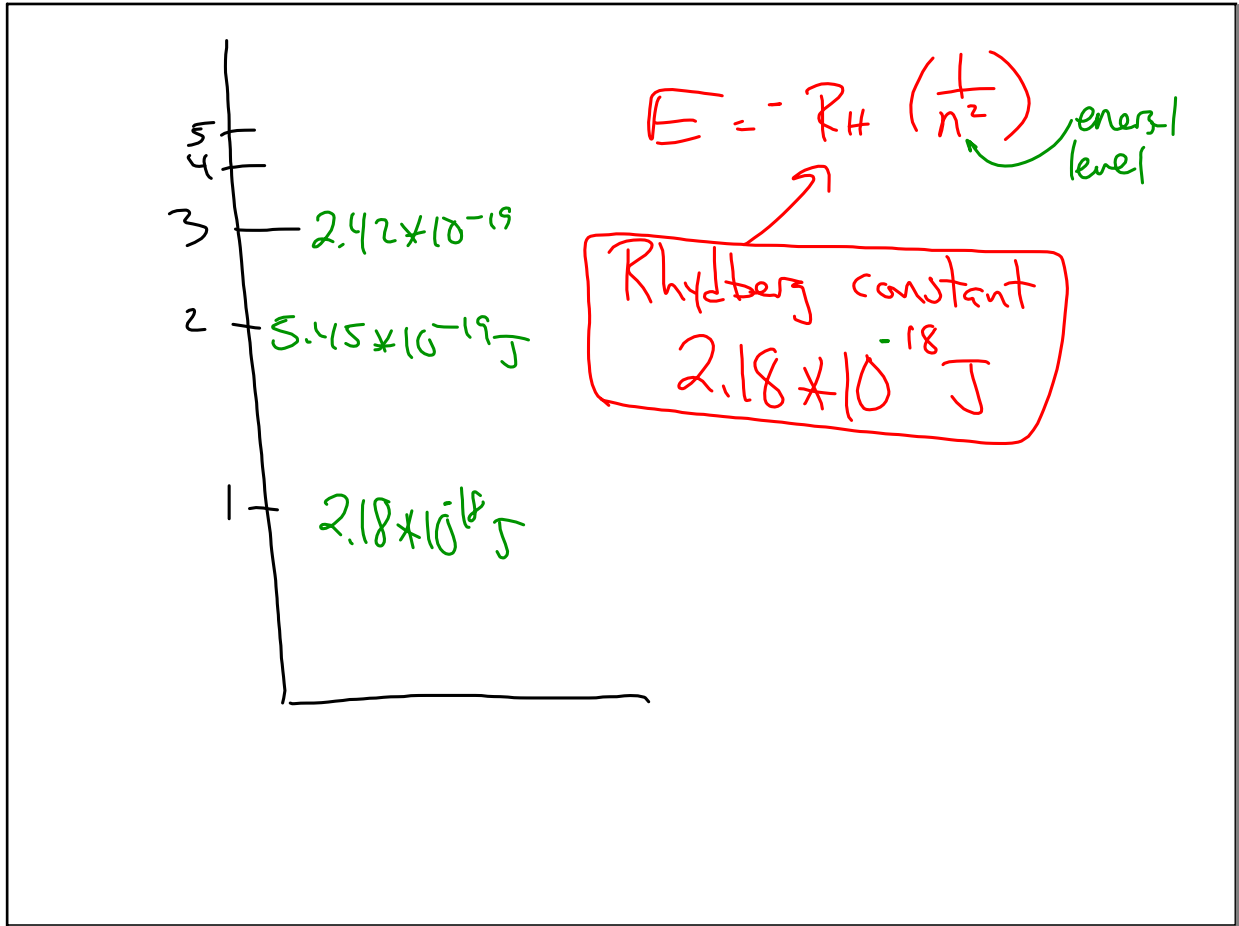
Oct 26-8:36 AM

(6.41) 85 kg $\frac{50 \text{ km}}{\text{hr}}$

$\frac{p}{r} = \frac{h}{mv}$

(kg) (m/sec)

Oct 26-8:49 AM



Oct 26-8:51 AM

Energy Jumps

Excited
↑
Ground

$E = -R_H \left(\frac{1}{n^2}\right)$
 $= -\frac{R_H}{n^2}$
 At \ominus energy level

$\Delta E = E_f - E_i$

$= \left[\frac{-R_H}{n_f^2} \right] - \left[\frac{-R_H}{n_i^2} \right]$

$= \frac{R_H}{n_i^2} - \frac{R_H}{n_f^2}$

$\Delta E = R_H \left(\frac{1}{n_i^2} - \frac{1}{n_f^2} \right)$

Energy difference between 2 levels.

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$$\Delta E = R_H \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right) = hf$$

5 → 2

$\Delta E = ?$

$E = 4.578 \times 10^{-19} \text{ J}$

$E = hf$ → $f = \frac{E}{h}$

$f = 6.9 \times 10^{14} \text{ sec}^{-1}$

$c = f\lambda$ → $\lambda = \frac{c}{f}$

$\lambda = 4.34 \times 10^{-7} \text{ m}$
434 nm (Blue)

Color of light
434 nm
is released

Oct 26-9:02 AM

$$E = hf$$

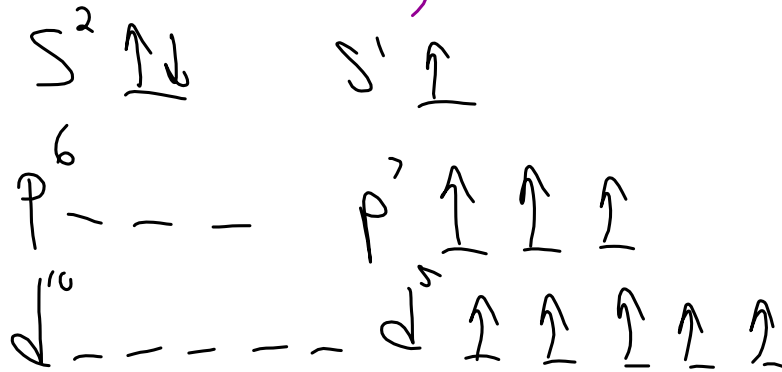
$$E = \frac{hc}{\lambda}$$

$$\lambda = \frac{hc}{E} = \frac{(6.63 \times 10^{-34}) (3 \times 10^8)}{4.578 \times 10^{-19}}$$

Oct 26-9:11 AM

STABLE \rightarrow ① 8 valence e-
 \rightarrow ② Full valence shell.

Mostly stable
 (OK-ish stable) Sublevel is half full



Oct 26-9:13 AM

LAB due

$$6 / 36 + 44$$

Oct 26-9:17 AM