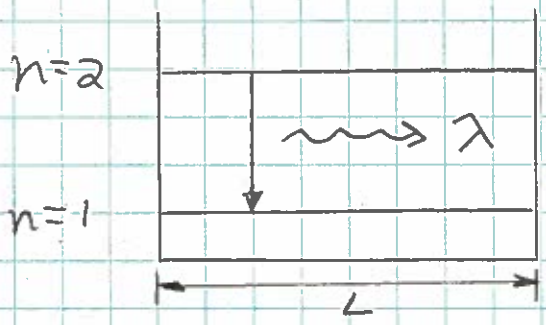
Infinite Square Well:



$$E_n = \frac{h^2 n^2}{8mL^2}$$

a.) Photon energy, $E_{phot} = E(n=2) - E(n=1)$

$$= \frac{h^2(2)^2}{8mL^2} - \frac{h^2(1)^2}{8mL^2}$$

$$= \frac{3h^2}{8mL^2}$$

and

$$E_{phot} = \frac{hc}{\lambda} = \frac{3h^2}{8mL^2}$$

$$\therefore \quad \lambda = \frac{8mcL^2}{3h}$$

b.) e^- and $\lambda = 694\ nm$:

$$L = \sqrt{\frac{3h\lambda}{8mc}} = 7.95 \times 10^{-10}\ m$$

$$= 0.795\ nm$$

$m = 9.11 \times 10^{-31}\ kg.$