

## Problem 7

$$h = 1.055 \times 10^{-34} \text{ J}\cdot\text{s} \approx 1$$

$$\Rightarrow \text{J}\cdot\text{s} = \frac{1}{(1.055 \times 10^{-34})} = 6.5$$

$$J = 6.242 \times 10^{18} \text{ eV}$$

$$\Rightarrow (6.242 \times 10^{18}) \text{ eV}\cdot\text{s} = \frac{1}{1.055 \times 10^{-34}}$$

$$\Rightarrow \text{eV}\cdot\text{s} = \frac{1}{(1.055 \times 10^{-34})(6.242 \times 10^{18})}$$

$$\text{eV} = 1$$

$$\Rightarrow \boxed{t = 1 = 1.519 \times 10^{15} \text{ s}}$$

$$J = \frac{\text{kg} \times \text{m}^2}{\text{s}^2} = (6.242 \times 10^{18})$$

$$m = \sqrt{\frac{(6.242 \times 10^{18}) \text{ s}^2}{\text{kg}}}$$

$$m_e = 9.109 \times 10^{-31} \text{ kg}$$

$$m = \sqrt{\frac{(6.242 \times 10^{18})(1.519 \times 10^{15})^2}{(9.109 \times 10^{-31})}}$$

$$\boxed{X = 1 = 3.62 \times 10^9 \text{ m}}$$