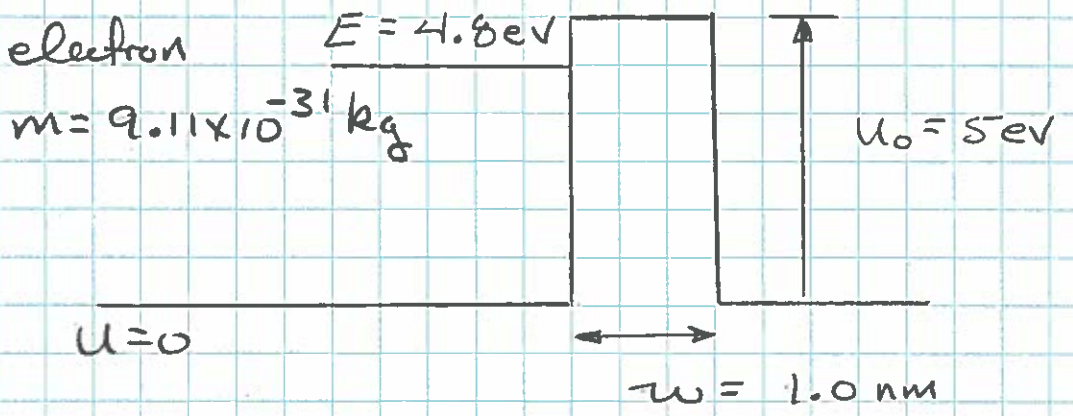

Tunneling Prob: $P_{tunnel} = e^{-2w/\eta}$

where: $\eta = \dfrac{\hbar}{\sqrt{2m(U_0 - E)}}$

$$U_0 = 5 \text{ ev} \left(\frac{1.6 \times 10^{-19} \text{ J}}{1 \text{ ev}} \right) = 8 \times 10^{-19} \text{ J}$$

$$E = 4.8 \text{ ev} \left(\frac{1.6 \times 10^{-19} \text{ J}}{1 \text{ ev}} \right) = 7.68 \times 10^{-19} \text{ J}.$$

$$\hbar = 1.05 \times 10^{-34} \text{ J s}$$

So: $\eta = 4.35 \times 10^{-10}$ m

$\therefore$ $P_{tunnel} = e^{-2w/\eta} = 0.01 = 1\%$