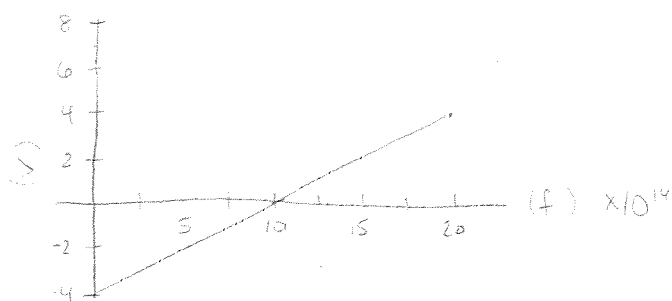




a) Cutoff λ occurs when $KE_{\max} = 0$ (or $V = 0$)

Estimating from the graph: $f \approx 10 \times 10^{14} \text{ Hz}$

$$v = f \cdot \lambda$$

$$(3 \times 10^8 \text{ m/s}) = (10 \times 10^{14} \text{ Hz}) \cdot \lambda$$

$$\lambda \approx 300 \text{ nm}$$

b) Using the same f : $KE_{\max} = 0$ at $f \approx 10 \times 10^{14} \text{ Hz}$

$$KE_{\max} = h \cdot f - \phi$$

$$0 = (4.14 \times 10^{-15} \text{ eV}\cdot\text{s})(10 \times 10^{14} \text{ Hz}) - \phi$$

$$\phi \approx 4.1 \text{ eV}$$

(could also be estimated from y-intercept of graph)

c) $\frac{h}{e}$ is slope on a Volts-frequency graph:

Using $(10 \times 10^{14}, 0)$ and $(30 \times 10^{14}, 8.3)$

$$m = \frac{\text{rise}}{\text{run}} = \frac{(8.3 \text{ V} - 0 \text{ V})}{(30 \times 10^{14} \text{ Hz}) - (10 \times 10^{14} \text{ Hz})}$$

$$m = \frac{h}{e} = 4.15 \times 10^{-15} \text{ V}\cdot\text{s}$$