Calculate the ionisation energy of rubidium per atom, if light of wavelength 5.84 ⋅ 10−8 m produces electrons with a speed of 2.450 ⋅ 106 ms−1

$$E_{light} = E_{ionisation} + E_{kinetic}$$

$$E_{ionisation} = E_{light} - E_{kinetic}$$

$$E_{ionisation} = \frac{h * c}{\lambda} - \frac{m * v^2}{2}$$

$$= \frac{6.626 \cdot 10^{-34} J \cdot s \ * \ 3 \cdot 10^{8} \, m/s}{5.84 \cdot 10^{-8} \, m} - \frac{9.11 \cdot 10^{-31} \, kg \ * \ (2.450 \cdot 10^{6} \, m/s)^2}{2}$$

$$\approx 6.67 \cdot 10^{-19} J$$

Answer: $\mathbf{6.67 \cdot 10^{-19} \, J}$