

1. One way to think of the units of h is that, because of the equation $E = hf$ and the fact that f is in cycles/second, then the “explicit” units for h should be J·s/cycle. Then, since 2π rad/cycle is a conversion factor for cycles \rightarrow radians, $\hbar = h/2\pi$ can be thought of as the Planck constant expressed in terms of radians instead of cycles. Using the precise values stated in Appendix B,

$$\begin{aligned}\hbar &= \frac{h}{2\pi} = \frac{6.62606876 \times 10^{-34} \text{ J}\cdot\text{s}}{2\pi} = 1.05457 \times 10^{-34} \text{ J}\cdot\text{s} \\ &= \frac{1.05457 \times 10^{-34} \text{ J}\cdot\text{s}}{1.6021765 \times 10^{-19} \text{ J/eV}} = 6.582 \times 10^{-16} \text{ eV}\cdot\text{s} .\end{aligned}$$