Some equations and formulae that might or might not be useful:

$\Delta E = h\nu$; $\nu = \dfrac{c}{\lambda}$; $\lambda = \dfrac{h}{p}$

$h = 6.626 \times 10^{-34}$ J s; $\hbar = h/(2\pi)$
$c = 3 \times 10^{8}$ m/s; $k_B = 1.38 \times 10^{-23}$ J K^{-1}

$\hat{p}_x = -i\hbar \dfrac{\partial}{\partial x}$; $E_{kinet} = K = \dfrac{p^2}{2m}$

$\Delta p_x \cdot \Delta x \geq \dfrac{\hbar}{2}$

$E = \dfrac{\hbar^2 k^2}{2m}$; $\Psi_+(x) = Ae^{ikx}$; $\Psi_-(x) = Ae^{-ikx}$

$m_e = 9.1 \times 10^{-31}$ kg

$E_n = \dfrac{h^2 n^2}{8ma^2}$; $\Psi_n(x) = \sqrt{\dfrac{2}{a}} \sin\left(\dfrac{\pi n}{a} x\right)$

$m_p = 1.67 \times 10^{-27}$ kg; 1 amu = 1.66×10^{-27} kg

$E_n = \left(n + \tfrac{1}{2}\right)h\nu$; $\Psi_n(x) = A_n H_n\left(\sqrt{\alpha}x\right)e^{-\alpha x^2/2}$

$\nu = \dfrac{1}{2\pi}\sqrt{\dfrac{k}{\mu}}$; $A_n = \dfrac{1}{\sqrt{2^n n!}}\left(\dfrac{\alpha}{\pi}\right)^{1/4}$

$\alpha = \sqrt{k\mu}/\hbar$; $\mu = m_1 m_2/(m_1 + m_2)$

$H_0\left(\sqrt{\alpha}x\right) = 1$; $H_1\left(\sqrt{\alpha}x\right) = 2\sqrt{\alpha}x$

$H_2\left(\sqrt{\alpha}x\right) = 2(2\alpha x^2 - 1)$

$H_3\left(\sqrt{\alpha}x\right) = 4\sqrt{\alpha}x(2\alpha x^2 - 3)$

$E_{m_l} = \dfrac{\hbar^2}{2I} m_l^{\,2}$; $\Psi_{m_l}(\phi) = \dfrac{1}{\sqrt{2\pi}} e^{im_l\phi}$

$\hat{l}_z = -i\hbar \dfrac{\partial}{\partial \phi}$; $l_z = m_l \hbar$; $I = \mu r^2$

$E_l = \dfrac{l(l+1)\hbar^2}{2I}$; $\Psi_{l.m_l} = Y_{l,m_l}(\theta,\phi)$;

$\left|\vec{l}\right|^2 = l(l+1)\hbar^2$; $l_z = m_l \hbar$

$Y_{0,0}(\theta,\phi) = 1/\sqrt{4\pi}$; $Y_{1,0}(\theta,\phi) = (3/4\pi)^{1/2}\cos\theta$

$Y_{1,\pm1}(\theta,\phi) = \mp(3/8\pi)^{1/2}\sin\theta\, e^{\pm i\phi}$

$Y_{2,0}(\theta,\phi) = (5/16\pi)^{1/2}\left(3\cos^2\theta - 1\right)$

$Y_{2,\pm1}(\theta,\phi) = \mp(15/8\pi)^{1/2}\cos\theta\sin\theta\, e^{\pm i\phi}$

$Y_{2,\pm2}(\theta,\phi) = (15/32\pi)^{1/2}\sin^2\theta\, e^{\pm 2i\phi}$

$\left[\hat{A},\hat{B}\right] = \hat{A}\hat{B} - \hat{B}\hat{A}$; $\Delta A \times \Delta B \geq \dfrac{1}{2}\left|\left\langle\left[\hat{A},\hat{B}\right]\right\rangle\right|$

Helpful Math:

$e^{i\alpha} = \cos\alpha + i\sin\alpha$;
$\cos\alpha = (e^{i\alpha} + e^{-i\alpha})/2$; $\sin\alpha = (e^{i\alpha} - e^{-i\alpha})/2i$

$\sin 2\alpha = 2\sin\alpha\cos\alpha$; $\cos 2\alpha = \cos^2\alpha - \sin^2\alpha$;
$2\sin^2\alpha = 1 - \cos 2\alpha$; $2\cos^2\alpha = 1 + \cos 2\alpha$

$\int_0^\infty e^{-ax^2} x^{2n}\, dx = \sqrt{\dfrac{\pi}{a}}\dfrac{1\cdot 3\cdot 5\cdot \ldots \cdot(2n-1)}{2^{n+1}a^n}$ (for $n \geq 1$);

$\int_0^\infty e^{-ax^2}\, dx = \dfrac{1}{2}\sqrt{\dfrac{\pi}{a}}$; $\int_0^\infty e^{-ax^2} x^2\, dx = \dfrac{1}{4a}\sqrt{\dfrac{\pi}{a}}$

$\int_0^a \sin^2\left(\dfrac{\pi n}{a}x\right)dx = \dfrac{a}{2}$; $\int_0^\infty x^n e^{-ax}\, dx = \dfrac{n!}{a^{n+1}}$

$n! = 1\cdot 2\cdot \ldots \cdot n$