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

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

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

$E_n = \left(n + \frac{1}{2}\right) h\nu$;

$\Psi_n(x) = A_n H_n\left(\sqrt{\alpha} x\right) e^{-\alpha x^2/2}$;

$\nu = \frac{1}{2\pi}\sqrt{\frac{k}{\mu}}$; $\alpha = \sqrt{k\mu}/\hbar$;

$h = 6.62 \times 10^{-34}$ J s; $\hbar = h/(2\pi)$

$c = 3 \times 10^8$ m/s

$m_e = 9.1 \times 10^{-31}$ kg; $m_p = 1.67 \times 10^{-27}$ kg

$N_A = 6.02 \times 10^{23}$ mol^{-1} ; $k_B = 1.38 \times 10^{-23}$ J K^{-1};

$R = N_A \times k_B = 8.31$ J mol^{-1} K^{-1}

$H_0(\xi) = 1$; $H_1(\xi) = 2\xi$; $H_2(\xi) = 4\xi^2 - 2$;

$H_3(\xi) = 8\xi^3 - 12\xi$;

here $\xi = \sqrt{\alpha} x$; and $A_n = \frac{1}{\sqrt{2^n n!}}\left(\frac{\alpha}{\pi}\right)^{1/4}$

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

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

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

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

$E_J = \frac{J(J+1)\hbar^2}{2I} = hcBJ(J+1)$

$E_n = -\frac{m_e e^4}{8\varepsilon_o^2 h^2 n^2} = -\frac{\hbar^2}{2m_e a_o^2 n^2}$;

$\Psi_{n,l.m_l} = R_{n,l}(r) Y_{l,m_l}(\theta,\phi)$

$a_o = \frac{4\pi\varepsilon_o \hbar^2}{m_e e^2}$

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

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

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

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

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

$R_{1,0} = 2(1/a_o)^{3/2} e^{-r/a_o}$; $R_{2,0} = \frac{1}{\sqrt{8}}(1/a_o)^{3/2}\left(2 - \frac{r}{a_o}\right) e^{-r/2a_o}$

$R_{2,1} = \frac{1}{2\sqrt{6}}(1/a_o)^{3/2} \frac{r}{a_o} e^{-r/2a_o}$

$R_{3,0} = \frac{2}{81\sqrt{3}}(1/a_o)^{3/2}\left(27 - 18\frac{r}{a_o} + 2\frac{r^2}{a_o^{\ 2}}\right) e^{-r/3a_o}$

$R_{3,1} = \frac{4}{81\sqrt{6}}(1/a_o)^{3/2}\left(6\frac{r}{a_o} - \frac{r^2}{a_o^{\ 2}}\right) e^{-r/3a_o}$

$R_{3,2} = \frac{4}{81\sqrt{30}}(1/a_o)^{3/2} \frac{r^2}{a_o^{\ 2}} e^{-r/3a_o}$

$\hat{I}_z\alpha = \frac{\hbar}{2}\alpha$; $\hat{I}_z\beta = -\frac{\hbar}{2}\beta$; $\left[\hat{I}_x, \hat{I}_y\right] = i\hbar \hat{I}_z$; $\hat{I}_x\alpha = \frac{\hbar}{2}\beta$; $\hat{I}_x\beta = \frac{\hbar}{2}\alpha$; $\hat{I}_y\alpha = i\frac{\hbar}{2}\beta$; $\hat{I}_y\beta = -i\frac{\hbar}{2}\alpha$

$\hat{I}^2\alpha = \frac{3\hbar^2}{4}\alpha$; $\hat{I}^2\beta = \frac{3\hbar^2}{4}\beta$; $\int \alpha^*\alpha\, d\sigma = 1$; $\int \beta^*\beta\, d\sigma = 1$; $\int \beta^*\alpha\, d\sigma = 0$; $\int \alpha^*\beta\, d\sigma = 0$

$\hat{H} = -\gamma B_0 \hat{I}_z$; $\nu = \gamma B_0 / 2\pi$;

$\mu_{21} = \int \Psi_2^{\ *} \mu \Psi_1\, dx$

$e^{i\alpha} = \cos\alpha + i\sin\alpha$; $\cos\alpha = (e^{i\alpha} + e^{-i\alpha})/2$; $\sin\alpha = (e^{i\alpha} - e^{-i\alpha})/2i$	$\sin 2\alpha = 2\sin\alpha\cos\alpha$; $\cos 2\alpha = \cos^2\alpha - \sin^2\alpha$; $2\sin^2\alpha = 1 - \cos 2\alpha$; $2\cos^2\alpha = 1 + \cos 2\alpha$
$\int_{-\infty}^{\infty} e^{-ax^2} x^{2n}\, dx = \sqrt{\frac{\pi}{a}} \frac{1\cdot 3\cdot 5\cdot \ldots \cdot (2n-1)}{2^n a^n}$ (for	n≥0); $\int_0^{\infty} e^{-ax^2} dx = \frac{1}{2}\sqrt{\frac{\pi}{a}}$; $\int_0^{\infty} e^{-ax^2} x^2\, dx = \frac{1}{4a}\sqrt{\frac{\pi}{a}}$
$\int_0^a \sin^2(\frac{\pi n}{a} x) dx = \frac{a}{2}$;	$\int_0^{\infty} x^n e^{-ax} dx = \frac{n!}{a^{n+1}}$

I might add more equations