$$
\begin{aligned}
G &= 6.67\times10^{-11}\ N\cdot m^2/kg^2\\
g &= 9.8m/s^2\\
c &= 3.00\times10^{8}m/s\\
R &= 8.314J/(\mathrm{mol}\cdot\mathrm{K})\\
k &= 1.38\times10^{-23}J/K\\
\rho_{\text{ice}} &= 0.92\times10^{3}kg/m^3\\
\rho_{\text{water}} &= 1.00\times10^{3}kg/m^3\\
\rho_{\text{blood}} &= 1.06\times10^{3}kg/m^3\\
\rho_{\text{lead}} &= 11.3\times10^{3}kg/m^3\\
\alpha_{\text{brass}} &= 19\times10^{-6}/^{o}C\\
R_E &= 6.38\times10^{3}km\\
M_E &= 5.98\times10^{24}kg\\
N_{\mathrm{A}} &= 6.02\times10^{23}\ \mathrm{mol}^{-1}\\
m_{\mathrm{e}} &= 9.11\times10^{-31}\ kg\\
m_{\mathrm{p}} &= 1.67\times10^{-27}\ kg\\
1\ \mathrm{m} &= 3.28\ \mathrm{ft}\\
1\ \mathrm{mi} &= 5280\ \mathrm{ft}\\
1\ \mathrm{lb} &= 4.45\ N\\
1\ \mathrm{u} &= 1.6605\times10^{-27}kg\\
\Delta x &= x_2-x_1\\
v_{\text{avg}} &= \frac{\Delta x}{\Delta t}=\frac{x_2-x_1}{t_2-t_1}\\
\bar{s} &= \frac{\text{total distance}}{\Delta t}\\
a_{\text{avg}} &= \frac{\Delta v}{\Delta t}=\frac{v_2-v_1}{t_2-t_1}\\
R_E &= 6.38\times10^{3}km\\
M_E &= 5.98\times10^{24}kg\\
v &= v_0+at\\
x-x_0 &= v_0t+\frac{1}{2}at^2\\
v^2 &= v_0^2+2a\,(x-x_0)\\
x-x_0 &= \frac{1}{2}\,(v_0+v)\,t\\
x-x_0 &= vt-\frac{1}{2}at^2\\
a_x &= a\cos\theta\\
a_y &= a\sin\theta\\
a &= \sqrt{a_x^2+a_y^2}\\
\tan\theta &= \frac{a_y}{a_x}\\
x-x_0 &= v_{0x}t\\
y-y_0 &= v_{0y}t-\frac{1}{2}gt^2\\
R &= \frac{v_0^2}{g}\sin(2\theta_0)
\end{aligned}
$$

$$
\begin{aligned}
a &= \frac{v^2}{r}\\
T &= \frac{2\pi r}{v}\\
f &= \mu N\\
K &= \frac{1}{2}mv^2\\
\Delta K &= K_f-K_i=W\\
W &= Fd\cos\phi\\
W &= \vec{F}\cdot\vec{d}\\
W_g &= mgd\cos\phi\\
F &= -kx\\
W_s &= -\frac{1}{2}kx^2\\
\bar{P} &= \frac{W}{\Delta t}\\
P &= \vec{F}\cdot\vec{v}\\
PE &= mgh\\
PE &= \frac{1}{2}kx^2\\
P &= \frac{\Delta E}{\Delta t}\\
\Sigma\vec{F} &= m\vec{a}\\
W &= mg\\
\vec{F}_{\mathrm{AB}} &= -\vec{F}_{\mathrm{BA}}\\
x_{\text{com}} &= \frac{1}{M}\Sigma_{i=1}^{n}m_ix_i\\
\vec{p} &= m\vec{v}\\
\Sigma\vec{F} &= \frac{\Delta\vec{p}}{\Delta t}\\
\vec{P} &= M\vec{v}_{\text{cm}}\\
v_{1f} &= \frac{m_1-m_2}{m_1+m_2}v_{1i}\\
v_{2f} &= \frac{2m_1}{m_1+m_2}v_{1i}\\
v &= r\omega\\
a_{\tan} &= r\alpha\\
a_{\mathrm{R}} &= \omega^2r\\
\omega &= \omega_0+\alpha t\\
\theta &= \omega_0t+\frac{1}{2}\alpha t^2\\
\omega^2 &= \omega_0^2+2\alpha\theta\\
\bar{\omega} &= \frac{\omega+\omega_0}{2}\\
\tau &= rF\sin\theta\\
\Sigma\tau &= I\alpha\\
I &= \Sigma mr^2\\
\mathrm{KE} &= \frac{1}{2}I\omega^2\\
L &= I\omega\\
1\mathrm{atm} &= 1.013\times10^{5}Pa
\end{aligned}
$$

$$
\begin{aligned}
\rho &= \frac{m}{V} \\
p &= \frac{F}{A} \\
p &= p_0 + \rho g h \\
R &= A v \\
p_1 + \frac{1}{2}\rho v_1^2 + \rho g y_1 &= p_2 + \frac{1}{2}\rho v_2^2 + \rho g y_2 \\
p + \frac{1}{2}\rho v^2 + \rho g y &= \text{a constant} \\
F_{\mathrm{B}} &= \rho_{\mathrm{fl}} V_{\mathrm{dis}} g \\
T_{\mathrm{spr}} &= 2\pi\sqrt{\frac{m}{k}} \\
T_{\mathrm{pen}} &= 2\pi\sqrt{\frac{L}{g}} \\
T &= 1/f \\
x &= A\cos(2\pi f t) \\
\omega &= 2\pi f \\
v &= \lambda f \\
f_n &= n\frac{v}{2L} \\
v &= (331 + 0.60T)\ \text{ m/s} \\
\beta\ (\text{in dB}) &= 10\log_{10}\frac{I}{I_0} \\
f_{\mathrm{beat}} &= |f_1 - f_2| \\
f' &= f\left(\frac{v_{\mathrm{snd}} \pm v_{\mathrm{obs}}}{v_{\mathrm{snd}} \mp v_{\mathrm{source}}}\right) \\
T(^oC) &= \frac{5}{9}\left[T(^oF) - 32\right] \\
T(^oF) &= \frac{9}{5}T(^oC) + 32 \\
T(K) &= T(^oC) + 273.15 \\
\Delta L &= \alpha L_0 \Delta T \\
PV &= nRT \\
PV &= NkT \\
\bar{\mathrm{KE}} &= \frac{1}{2}m\bar{v}^2 = \frac{3}{2}kT
\end{aligned}
$$