$v = \lambda f = \dfrac{\omega}{k}$

$v = \sqrt{\dfrac{\tau}{\mu}}$ $\qquad v = \sqrt{\dfrac{B}{\rho}}$

$y = y_m \sin(kx - \omega t + \varphi)$

$P = \dfrac{1}{2}\mu\omega^2 \, y_m^{\,2} \, v$

$S = S_m \cos(kx - \omega t)$

$\Delta P = \Delta P_m \sin(kx - \omega t), \ \Delta P_m = \rho v \omega S_m$

$I = \dfrac{1}{2}\rho(\omega S_m)^2 v$

$\beta = 10\log\left(\dfrac{I}{I_o}\right)$

$I = \dfrac{\text{Power}}{\text{Area}}$

$f' = f\left(\dfrac{v \pm v_D}{v \mp v_s}\right)$

$y = \left(2y_m \cos\dfrac{\varphi}{2}\right)\sin\left(kx - \omega t + \dfrac{\varphi}{2}\right)$

$y = (2y_m \sin kx)\cos\omega t$

$f_n = \dfrac{nv}{2L}, \qquad n = 1,2,3,...$

$f_n = \dfrac{nv}{4L}, \qquad n = 1,3,5...$

$\Delta L = \alpha L \Delta T$

$PV = nRT = NkT$

$\Delta L = \dfrac{\lambda}{2\pi}\varphi$

$\Delta L = m\lambda \qquad\qquad m = 0,1,2,....$

$\Delta L = \left(m + \dfrac{1}{2}\right)\lambda, \qquad m = 0,1,2,.....$

$PV^{\gamma} = \text{constant}; \ \ TV^{\gamma-1} = \text{constant}$

$C_v = \dfrac{3}{2}R$ for monatomic gases,

$\quad = \dfrac{5}{2}R$ for diatomic gases.

$T_F = \dfrac{9}{5}T_C + 32$

$Q = mL, \ Q = mc\Delta T$

$\Delta E_{int} = Q - W$

$\Delta E_{int} = nC_V \Delta T$

$C_p - C_v = R$

$W = \int P\,dV$

$H = \dfrac{Q}{t} = \kappa A \dfrac{T_H - T_C}{L}$

$P = \sigma\varepsilon \, AT^4$

$\dfrac{\overline{mv^2}}{2} = (3/2)kT$

$v_{rms} = \sqrt{\dfrac{3RT}{M}}$

$Q = nc_p \Delta T, \qquad Q = nc_v \Delta T$

$W = Q_h - Q_c$

$\varepsilon = \dfrac{W}{Q_h} = 1 - \dfrac{Q_c}{Q_h}, \quad K = \dfrac{Q_c}{W}$

$\dfrac{Q_c}{Q_h} = \dfrac{T_c}{T_h} \ , \ \Delta S = \int \dfrac{dQ}{T}$

Constants:

Pi $= \pi, \ $ lambda $= \lambda$

1 Liter $= 10^{-3} \text{ m}^3$

R $= 8.31$ J/mol K

$N_A = 6.02 \times 10^{23}$ molecules/mole

1 atm $= 1.01 \times 10^5$ N/m^2

k $= 1.38 \times 10^{-23}$ J/K

$I_o = 10^{-12}$ W/m^2

1 calorie $= 4.186$ Joule

$\sigma = 5.67 x 10^{-8} \, W / (m^2 K^4)$

micro $= 10^{-6}$

for water: $L_f = 80$ cal/g

$\qquad\qquad L_v = 540$ cal/g

$\qquad\qquad c = 1$ cal/g.K

"ur ggf "qh'uqwpf "kp "ckt"? '"562o lu"""""

$a * b ** c = a \, b^c$