TABELA DE FORMULAS

$$Q = m\,c\,\Delta T$$
$$Q = \pm mL$$
$$Q = n\,c_v\,\Delta T$$
$$Q = n\,c_p\,\Delta T \quad c_p = c_v + R$$

$$P.V = n\,R\,T$$
$$P.V = N\,k_B\,T$$
$$n = \frac{N}{N_a} = \frac{m}{m_{molar}}$$
$$k_B = \frac{R}{N_a}$$

$$\Delta E_{term} = Q + W$$
$$W = -\int p\,dV$$

$$\eta = \frac{W_{saida}}{Q_Q} \quad K = \frac{Q_F}{W_{entrada}}$$

$$\eta = 1 - \frac{T_F}{T_Q}$$ (maquina térmica de Carnot)

$$\rho = \frac{m}{V}$$
$$E = \rho\,g\,V$$
$$v_1 A_1 = v_2 A_2$$
$$p_1 + \frac{1}{2}\rho v_1^2 + \rho g\, y_1 = c^{te}$$

$$v = \sqrt{\frac{T}{\mu}} \quad (para\ uma\ corda)$$
$$D(x,t) = A\,sen\left(kx \pm wt + \phi\right)$$
$$k = \frac{2\pi}{\lambda} \quad w = 2\pi f \quad T = \frac{1}{f}$$
$$v = \lambda f \quad n = \frac{c}{v}$$

Fonte em repouso.

$$f = \left(1 + \frac{v}{v_o}\right) f_o \quad (aproximando)$$
$$f = \left(1 - \frac{v}{v_o}\right) f_o \quad (afastando)$$

Observador em repouso.

$$f = \frac{f_o}{1 - \frac{v}{v_o}} \quad (aproximando)$$
$$f = \frac{f_o}{1 + \frac{v}{v_o}} \quad (afastando)$$

Doppler para a luz

$$\lambda = \sqrt{\frac{1 - v_o/c}{1 + v_o/c}}\,\lambda_o \quad (aproximando)$$
$$\lambda = \sqrt{\frac{1 + v_o/c}{1 - v_o/c}}\,\lambda_o \quad (afastando)$$