Formulário Geral Física III

$$E=\rho g V \qquad P+\frac{1}{2}\rho v^2+\rho g y=cte \qquad \frac{dV}{dt}=vA=cte \qquad \frac{F}{A}=Y\frac{\Delta L}{L} \qquad \frac{F}{A}=P=-B\frac{\Delta V}{V}$$

$$Q=mc\Delta T=nC\Delta T \qquad Q=\pm mL \qquad C_P=C_V+R \qquad \gamma=\frac{C_P}{C_V} \qquad n=\frac{N}{N_A}=\frac{m}{m_{molar}}$$

$$PV=nRT=Nk_BT=\frac{N}{3}m v_{rms}^2 \qquad \Delta E_{term}=Q+W=Q-\int PdV \qquad P_{adiab}V_{adiab}^{\gamma}=cte$$

$$W_{isoterm}=-nRTln\left(\frac{V_f}{V_i}\right) \qquad W_{adiabát}=\frac{1}{\gamma-1}\Delta(PV)=n C_V \Delta T \qquad K_{refrig}=\frac{Q_F}{W_{entra}}$$

$$\eta=\frac{W_{saída}}{Q_Q}=1-\frac{Q_F}{Q_Q}\le\eta_{Carnot}=1-\frac{T_F}{T_Q} \qquad \varepsilon_{med-trans}=\frac{3}{2}k_BT \qquad \varepsilon_{med-total}=\frac{g}{2}k_BT$$

$$livre-cam-med=\frac{1}{4\sqrt{2}\pi\frac{N}{V}r^2} \qquad \frac{Q}{\Delta t}=e\sigma A T^4 \qquad \sigma=5{,}67\,X\,10^{-8}W/m^2K^4$$

$$1\text{atm}=101{,}3\,kPa \qquad k_B=1{,}38\,X\,10^{-23}J/K \qquad N_A=6{,}02\,X\,10^{23}mol^{-1} \qquad T_0=0\text{K}=-273.^0C$$

$$R=8{,}31\,J/mol.K \qquad D(x,t)=A\,sen(kx\pm wt+\phi_0)=A\,sen\left(2\pi\left(\frac{x}{\lambda}\pm\frac{t}{T}\right)+\phi_0\right) \qquad v_{corda}=\sqrt{\frac{T}{\mu}}$$

$$v_{som}\approx 340\,m/s \qquad v=\lambda f \qquad n=\frac{c}{v} \qquad c=3{,}0\times10^8\,m/s \qquad \beta=(10\,dB)\log_{10}\left(\frac{I}{I_0}\right)$$

$$\beta_{relativo}=(10\,dB)\log_{10}\left(\frac{I_2}{I_1}\right) \qquad I_0=1{,}0\,X\,10^{-12}\frac{W}{m^2} \qquad .^{(1)}f=\frac{v\pm v_{obs}}{v\mp v_{fon}}f_0 \qquad .^{(2)}f_{luz}=\sqrt{\frac{v\pm v_{rel}}{v\mp v_{rel}}}f_0$$

$$Tubo-aberto-aberto: L=n.\frac{\lambda}{2}, n=1,2,3,4... \qquad .^{(1),(2)}f\,\frac{aumenta}{diminui}\,se\,\frac{aproxima}{afasta}$$

$$Tubo-aberto-fechado: L=n.\frac{\lambda}{4}; n=1,3,5,7... \qquad \Delta\varphi=\frac{2\pi\Delta r}{\lambda}$$

$$A\,sen(kx-wt+\phi_1)+A\,sen(kx-wt+\phi_2)=2A\cos\left(\frac{\phi_2-\phi_1}{2}\right)\times sen\left(kx-wt+\frac{\phi_1+\phi_2}{2}\right)$$

$$A\,sen(kx-wt+\phi_1)+A\,sen(kx+wt+\phi_2)=2A\cos\left(wt+\frac{\phi_2-\phi_1}{2}\right)\times sen\left(kx+\frac{\phi_1+\phi_2}{2}\right)$$

Máx. de inteferência: $d\,sen(\theta_n)=n\lambda.\,m=0,\pm1,\pm2,..$ Mín. de difração: $a\,sen(\theta_n)=n\lambda.\,m=\pm1,\pm2,..$

Mín. difração circular: $\theta_1=\frac{1{,}22\lambda}{D}$ $\qquad n_1\,sen(\theta_1)=n_2\,sen(\theta_2)$

$$\frac{1}{s}+\frac{1}{s'}=\frac{1}{f}=(\frac{n_2}{n_1}-1)(\frac{1}{R_1}-\frac{1}{R_2})$$

$$m=\frac{h'}{h}=\frac{-s'}{s} \qquad v=\lambda f=\frac{c}{n}=\frac{\lambda_0 f}{n} \qquad \text{número-f}=\frac{f}{D}. \qquad M_{lente}=\frac{25\,cm}{f} \qquad C_{lente}=\frac{1}{f}$$

$$M_{telescópio}=\frac{-f_{obj}}{f_{ocular}} \qquad M_{microscóp}=m_{obj}M_{ocular}\approx\frac{-L}{f_{obj}}\frac{25cm}{f_{ocular}} \qquad m_{obj}=\frac{-s'}{s}\approx\frac{-L}{f_{obj}}$$

Critérios de Rayleigh: $\theta_{min}=\frac{1{,}22\lambda}{D}$ $\qquad d_{min-microscópio}=\frac{0{,}61\lambda}{AN}$ $\qquad w_{min}=\frac{2{,}44\lambda f}{D}$