$$X = A\cos(\omega t + \varphi)$$

$$\bar{E}_k = \frac{1}{4}mA^2\omega^2$$

$$\bar{E}_p = \frac{1}{4}kA^2$$

$$y = A\cos[\omega(t \pm \frac{x}{u}) + \varphi]$$

$$u = \frac{\lambda}{T}$$

$$T = \frac{2\pi}{\omega}$$

$$dW = \rho dv A^2\omega^2 \sin^2[\omega(t - \frac{x}{u}) + \varphi]$$

$$\bar{\omega} = \frac{1}{2}\rho A^2\omega^2$$

$$I = \frac{1}{2}\rho A^2\omega^2 u$$

$$w = \frac{1}{u}EH$$

$$y = 2A\cos(\frac{2\pi x}{\lambda})\cos(\omega t)$$

$$y_1 = A\cos(\omega t - \frac{2\pi x}{\lambda} + \varphi_1)$$

$$y_2 = A\cos(\omega t - \frac{2\pi x}{\lambda} + \varphi_2)$$

$$y_1 p = y_2 p$$

(有半波损失 $+\pi$)

$$\delta = \frac{xd}{D}$$

$$\Delta x = \frac{\lambda D}{d}$$

$$\delta = 2ne + \frac{1}{2}\lambda$$

(有半波损失要加上 $\frac{1}{2}\lambda$)

$$L = \frac{\lambda}{2n\theta}$$

加强，有半波损失，$d_{min} = \frac{\lambda}{4n}$

$$\frac{nr^2}{R} = k\lambda$$

(对于暗纹)

$$2\Delta d = N\lambda$$

$$\Delta x = f\frac{\lambda}{a}$$

$$\begin{cases} (a+b)sin\theta = \pm k\lambda \\ asin\theta = \pm k'\lambda \end{cases}$$

$$tani_B = \frac{n_2}{n_1}$$

$$\begin{cases} x' = \frac{x-vt}{\sqrt{1-\frac{v^2}{c^2}}} \\ y' = y \\ z' = z \\ t' = \frac{t-\frac{v}{c^2}x}{\sqrt{1-\frac{v^2}{c^2}}} \end{cases}$$

$$\Delta t = \frac{\Delta t'}{\sqrt{1-\frac{v^2}{c^2}}}$$

$$\Delta x = \Delta x'\sqrt{1-\frac{v^2}{c^2}}$$

$$m = \frac{m_0}{\sqrt{1-\frac{v^2}{c^2}}}$$

$$E_k = mc^2 - m_0c^2$$

$$e = \sigma T^4$$

$$\lambda_m = \frac{b}{T}$$

$$E_k = h\nu - w_0$$

$$w_0 = h\nu_0$$

$$p = \frac{h}{\lambda}$$

$$\lambda_c = \frac{h}{m_0 c}$$

$$\Delta\lambda = 2\lambda_c sin^2\frac{\theta}{2}$$

$$\nu = \frac{E}{h}$$

$$\frac{1}{\lambda} = R(\frac{1}{n^2} - \frac{1}{m^2})$$

$$l : 0 \; h - 1| \; m_l : 0 \; \pm l \; |m_s : \pm\frac{1}{2}$$

$$cosx + cosy = 2cos\frac{x+y}{2}cos\frac{x-y}{2}$$