我的第一个 LaTeX 文档

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1 一级标题

1.1 二级标题

这里是正文.

1.2 二级标题

这里是正文.

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

定理 1.1 (定理名称)**.** *这里是定理的内容.*

$$\left(\frac{xdx}{dy} - \frac{ydy}{dx}\right)^2 \ , \ [\vec{F} = m\vec{a}] \ , \ \left|\frac{a}{b}\right| \ \left\|\frac{a}{b}\right\| \ \left\langle\frac{a}{b}\right\rangle \left\{\sqrt{a + \sqrt{a + \sqrt{a}}} \to \infty\right\}$$

! $\int_b^a f'(x)dx = f(b) - f(a)$ $\underbrace{\frac{1}{4}W_{\mu\nu} \cdot W^{\mu\nu} - \frac{1}{4}B_{\mu\nu}B^{\mu\nu} - \frac{1}{4}G^a_{\mu\nu}G_a^{\mu\nu}}_{\text{kinetic energies and self-interactions of the gauge bosons}}$

$\|x+y\| \geq \big|\|x\| - \|y\|\big|$ $\nabla \cdot \mathbf{D} = \rho \text{ and } \nabla \cdot \mathbf{B} = 0$

$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t} \text{ and } \nabla \times \mathbf{H} = \mathbf{J} + \frac{\partial \mathbf{D}}{\partial t}$

$y = \frac{\sum\limits_i w_i y_i}{\sum\limits_i w_i} \quad , i = 1, 2...k$ $e = \lim\limits_{n\to\infty} \left(1 + \frac{1}{n}\right)^n$

$$\dot{x}_i = a_i x_{i'} - (d + a_{i0} + a_{i1})x_i + r x_i(f_i - \phi)$$

$$\begin{cases} \nabla \cdot \mathbf{D} = \rho_V, \\ \nabla \cdot \mathbf{B} = 0, \\ \nabla \times \mathbf{H} = \mathbf{J} + \frac{\partial \mathbf{D}}{\partial t}, \\ \nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}. \end{cases} \tag{1}$$

$$y^2 = x^3 + ax + b \tag{2}$$

$$y^2 = (x-a)(x-b)(x-c) \tag{3}$$

$$y^2 = x^3 + ax^2 + bx + c \tag{4}$$

$$x^3 + y^3 = a \tag{5}$$

$$a_{11}x^2 + 2a_{12}xy + a_{22}y^2 + 2a_{13}x + 2a_{23}y + a_{33} = 0 \tag{6}$$

$$\begin{cases} \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1 \\ \frac{x^2}{a^2} - \frac{y^2}{b^2} = 1 \\ y^2 = 2px \end{cases} \tag{7}$$

$$
\begin{aligned}
e^x &= 1 + \frac{1}{1!}x + \frac{1}{2!}x^2 + \frac{1}{3!}x^3 + o(x^3) && (8)\\
\ln(1+x) &= x - \frac{1}{2}x^2 + \frac{1}{3}x^3 + o(x^3) && (9)\\
\sin x &= x - \frac{1}{3!}x^3 + \frac{1}{5!}x^5 + o(x^5) && (10)\\
\arcsin x &= x + \frac{1}{2} \cdot \frac{x^3}{6} + \frac{1 \times 3}{2 \times 4} \cdot \frac{x^5}{40} + \frac{1 \times 3 \times 5}{2 \times 4 \times 6} \cdot \frac{x^7}{1120} + o(x^7) && (11)
\end{aligned}
$$

$$
\begin{aligned}
\sin x &= \sum (-1)^n \frac{(2n+1)! x^{2n+1}}{(2n+1)!}, && \forall x && (12)\\
\cos x &= \sum (-1)^n B_{2n} \frac{(4^n)(1-4^n)x^{2n}}{(2n)!} && && (13)\\
\tan x &= \sum B_{2n} \frac{(-4)^n(1-4^n)x^{2n-1}}{(2n)!}, && \forall x : |x| < \frac{\pi}{2} && (14)
\end{aligned}
$$

$$
\Omega = \frac{N!}{\prod a_i!.} \prod (\omega_i^{a_i}) \tag{5}
$$

$$
\begin{aligned}
\ln \Omega &= \ln(N!) - \sum_i \ln(a_i!) + \sum_i a_i \ln \omega_i \\
&\approx N(\ln N - 1) - \sum_i a_i(\ln a_i - 1) + \sum_i a_i \ln \omega_i \\
&= N \ln N - \sum_i a_i \ln \left(\frac{a_i}{\omega_i} \right)
\end{aligned} \tag{15}
$$

$$
\delta \Omega = 0, \delta^2 \Omega < 0 \tag{5}
$$

$$
\frac{\delta \Omega}{\Omega} = \delta(\ln \Omega) = -\sum_i \ln \left(\frac{a_i}{\omega_i} \right) \delta a_i - \sum_i \ln \left(\frac{a_i}{\omega_i} \right) \delta a_i \tag{6}
$$

$$
\sum_i \ln \left(\frac{a_i}{\omega_i} \right) \delta a_i = 0 \tag{7}
$$

$$
\begin{aligned}
\chi_{\pm} = -N_{\mathrm{Rb}} \frac{3\lambda^3}{4\pi^2} \cdot \frac{\Gamma}{\Omega_0} \cdot \frac{1}{\sqrt{\pi} u} \sum_{F_e=0}^{2} \sum_{m=-F_{\mathrm{g}}}^{F_{\mathrm{g}}} \frac{C_{1,m}^{F_{e,m\pm1}}}{a_{\pm}} \\
\times \int_{-\infty}^{\infty} dv e^{-(v/u)^2} \langle F_{e,m\pm1} | \rho_{\mathrm{pr}} | F_{\mathrm{g},m} \rangle,
\end{aligned} \tag{4}
$$

$$\mathbb{P}\left(\max_{\kappa N\leq k\leq(1-\kappa)N}\pi\sqrt{\frac{\beta}{2}}\cdot\frac{\rho_V(\gamma_k)N(\lambda_k-\gamma_k)}{\log N}\in[1-\epsilon,1+\epsilon]\right)=1-o(1) \tag{16}$$

$$U_{n+1}(x)=\begin{bmatrix}V_n & \vec{\Phi}_n^t(x)\\ \vec{\Phi}_n(x) & 0\end{bmatrix},\quad \vec{\Phi}_n(x)=[\phi_1(x),...,\phi_n(x)] \tag{17}$$

$$B_{\sigma,\kappa}((w,W),(v,V))=\int_\Omega\sigma\nabla w\cdot\nabla v dx+\int_{\partial\Omega}\kappa(W-w)(V-v)dS \tag{18}$$

$$a_j^-=\sqrt{\frac{m\Omega_j}{2\hbar}}\left(X_j+\frac{iP_j}{m\Omega_j}\right),\quad a_j^\dagger=\sqrt{\frac{m\Omega_j}{2\hbar}}\left(X_j-\frac{iP_j}{m\Omega_j}\right) \tag{19}$$