

$$n$$

$$S_n=\sum_{k=1}^na_k$$

$$(1) \quad a_n \leqslant \sum_{n=1}^\infty b_n \sum_{n=1}^\infty a_n \sum_{n=1}^\infty a_n \sum_{n=1}^\infty b_n$$

$$(2) \quad \lim_{n\rightarrow\infty} a_nb_n=\lambda$$

$$\begin{array}{l} \lambda > \\ 0 \\ \lambda = \\ 0 \sum_{n=1}^\infty b_n \sum_{n=1}^\infty a_n \\ \lambda = \\ +\infty \sum_{n=1}^\infty a_n \sum_{n=1}^\infty b_n \\ \sum_{n=1}^\infty a_n f(n) = \\ a_n \int_1^{+\infty} f(x)x \\ \sum_{n=1}^\infty a_n \end{array}$$

$$(3) \quad \lim_{n\rightarrow\infty} a_{n+1}a_n=\lambda$$

$$\begin{array}{l} \lambda < \\ 1 \\ \lambda > \\ 1 \\ \lambda = \\ 1 \\ \sum_{n=1}^\infty a_n \end{array}$$

$$(4) \quad \lim_{n\rightarrow\infty} \sqrt[n]{a_n}=\lambda$$

$$\begin{array}{l} \lambda < \\ 1 \\ \lambda > \\ 1 \\ \lambda = \\ 1 \\ \sum_{n=1}^\infty (-1)^{n-1}a_na_nS_na_{n+1} \end{array}$$

$$(5) \quad \begin{array}{l} |S-S_n|\leq a_{n+1} \\ \sum_{n=1}^\infty |a_n| \\ \sum_{n=1}^\infty u_n(x)x_0 \\ S \end{array}$$

$$(6) \quad \begin{array}{l} \forall \epsilon>0, \exists N(\epsilon)\in N_+, s.t. when n>N(\epsilon), \forall x\in D, always |S_N(x)-S(x)|<\epsilon \\ S \\ D \end{array}$$

$$\forall \epsilon>0, \exists N(\epsilon)\in N_+, \forall n,p\in N_+, n>N(\epsilon), \forall x\in D, |S_{n+p}(x)-S_n(x)|=|\sum_{k=n+1}^{n+p}u_k(x)|<\epsilon$$

$$(7) \quad \begin{array}{l} \mathbf{M} \\ \sum_{n=1}^\infty M_n|n_n(x) \leq \\ M_n[\overline{D}] \\ u_n \in \\ C(I)ISS \\ \sum_{n=0}^\infty a_n x^n \sum_{n=0}^\infty a_n (x-x_0)^n \end{array}$$

$$(8) \quad \begin{array}{l} \mathbf{Abel} \\ [-R,R] \\ \lim_{n\rightarrow\infty} 1\sqrt[n]{|a_n|} \\ R = \\ \lim_{n\rightarrow\infty} |a_na_{n+1}| \end{array}$$

$$(9) \quad e^x=1+x+x^22!+\ldots+x^nn!+\ldots$$