

$$\sum_{k=\dots}^{\infty} a_k \cdot (z - \text{Zahl})^k \quad \text{Konvergenzradius } \rho = \text{Kehrwert von } \overline{\lim}_{k \rightarrow \infty} \sqrt[k]{|a_k|} \quad \text{Entwicklungspunkt } z_0 = \text{Zahl}$$

$$\times \sum_{k=\dots}^{\infty} a_{2k} \cdot (z - \text{Zahl})^{2k} \quad \text{Konvergenzradius } \rho = \text{Kehrwert von } \overline{\lim}_{k \rightarrow \infty} \sqrt[2k]{|a_{2k}|} \quad \text{Entwicklungspunkt } z_0 = \text{Zahl}$$

$$\text{P 01} \quad \sum_{l=3}^{\infty} \left(\frac{z-4}{l-2} \right)^l = \sum_{l=3}^{\infty} \left(\frac{1}{l-2} \right)^l \cdot (z-4)^l \quad \infty \quad 4$$

$$\text{P 02} \quad \sum_{m=3}^{\infty} \frac{(-1)^m}{5m+1} (z+1-2i)^m = \sum_{m=3}^{\infty} \frac{(-1)^m}{5m+1} \cdot (z-(2i-1))^m \quad 1 \quad 2i-1$$

$$\text{P 03} \quad \sum_{n=3}^{\infty} 2^n \left(\frac{1}{5}z - i \right)^n = \sum_{n=3}^{\infty} \left(\frac{2}{5} \right)^n \cdot (z-5i)^n \quad \frac{5}{2} \quad 5i$$

$$\text{P 04} \quad \sum_{k=1}^{\infty} \left(-\frac{1}{5} \right)^k (z+7)^k = \sum_{k=1}^{\infty} \left(-\frac{1}{5} \right)^k \cdot (z-(-7))^k \quad 5 \quad -7$$

$$\times \text{P 05} \quad \sum_{k=2}^{\infty} \left(\frac{1}{36} (z^2 - 6iz - 9) \right)^k = \sum_{k=2}^{\infty} \left(\frac{1}{6} \right)^{2k} \cdot (z-3i)^{2k} \quad 6 \quad 3i$$

$$\text{P 06} \quad \sum_{k=3}^{\infty} \left(\frac{4+(-1)^k}{5e^6} \right)^k (z+1+3i)^k = \sum_{k=3}^{\infty} \left(\frac{4+(-1)^k}{5e^6} \right)^k \cdot (z-(-1-3i))^k \quad \frac{3}{5e^6} \quad \frac{5}{5e^6} \quad e^6 \quad -1-3i$$

$$\text{P 07} \quad \sum_{k=2}^{\infty} \frac{(z+12)^k}{6^k} = \sum_{k=2}^{\infty} \left(\frac{1}{6} \right)^k \cdot (z-(-12))^k \quad 6 \quad -12$$

$$\text{P 08} \quad \sum_{k=0}^{\infty} 3^k \left(\frac{1}{7}z - i \right)^k = \sum_{k=0}^{\infty} \left(\frac{3}{7} \right)^k \cdot (z-7i)^k \quad \rightarrow \text{P 03} \quad \frac{7}{3} \quad 7i$$

$$\text{P 09} \quad \sum_{k=1}^{\infty} \left(\frac{5+(-1)^k}{7} \right)^k (z+3i)^k = \sum_{k=1}^{\infty} \left(\frac{5+(-1)^k}{7} \right)^k \cdot (z-(-3i))^k \quad \rightarrow \text{P 06} \quad \frac{4}{7} \quad \frac{6}{7} \quad \frac{7}{6} \quad -3i$$

$$\text{P 10} \quad \sum_{k=0}^{\infty} (-1)^k k! (3+z)^k = \sum_{k=0}^{\infty} (-1)^k \cdot k! \cdot (z-(-3))^k \quad 0 \quad -3$$

$$\text{P 11} \quad \sum_{k=1}^{\infty} \left(\frac{z+i-1}{k} \right)^k = \sum_{k=1}^{\infty} \left(\frac{1}{k} \right)^k \cdot (z-(1-i))^k \quad \rightarrow \text{P 01} \quad \infty \quad 1-i$$

$$\times \text{P 12} \quad \sum_{k=0}^{\infty} \frac{z^{2k}}{9^k} = \sum_{k=0}^{\infty} \left(\frac{1}{3} \right)^{2k} \cdot (z-0)^{2k} \quad 3 \quad 0$$

$$\text{P 13} \quad \sum_{k=0}^{\infty} (k^2 + 4) \cdot (z-5i)^k \quad 1 \quad 5i$$

$$\times \text{P 14} \quad \sum_{k=0}^{\infty} \frac{z^{2k}}{3^k} = \sum_{k=0}^{\infty} \left(\frac{1}{\sqrt{3}} \right)^{2k} \cdot (z-0)^{2k} \quad \rightarrow \text{P 12} \quad \sqrt{3} \quad 0$$

$$\text{P 15} \quad \sum_{n=0}^{\infty} \frac{(-1)^n}{2^n - 5} x^n = \sum_{n=0}^{\infty} \frac{(-1)^n}{2^n - 5} \cdot (x-0)^n \quad 2 \quad 0$$

$$\times \text{P 16} \quad \sum_{n=0}^{\infty} 2e^{6n} x^{2n} = \sum_{n=0}^{\infty} 2 \cdot (e^3)^{2n} \cdot (x-0)^{2n} \quad \frac{1}{e^3} \quad 0$$

$$\text{P 17} \quad \sum_{n=0}^{\infty} \frac{x^{n+13}}{n!} = \sum_{n=13}^{\infty} \frac{1}{n!} \cdot (x-0)^n \quad (\text{geschlossener Ausdruck} \quad \rightarrow \text{R 22}) \quad \infty \quad 0$$

$$\text{P 18} \quad \sum_{k=0}^{\infty} \frac{3^k}{\sqrt{k+1}} x^k = \sum_{k=0}^{\infty} \frac{3^k}{\sqrt{k+1}} \cdot (x - \textcolor{brown}{0})^k \quad \frac{1}{3} \quad \textcolor{brown}{0}$$

$$\times \text{ P 19} \quad \sum_{k=0}^{\infty} -\frac{5^k}{2} x^{2k} = \sum_{k=0}^{\infty} -\frac{1}{2} \cdot (\sqrt{5})^{2k} \cdot (x - \textcolor{brown}{0})^{2k} \quad \frac{1}{\sqrt{5}} \quad \textcolor{brown}{0}$$

$$\text{P 20} \quad \sum_{k=1}^{\infty} \left(\frac{z + 3i}{11} \right)^k = \sum_{k=1}^{\infty} \left(\frac{1}{11} \right)^k \cdot (z - (\textcolor{brown}{-3i}))^k \quad 11 \quad \textcolor{brown}{-3i}$$

$$\text{P 21} \quad \sum_{n=0}^{\infty} (\sqrt{5} + (-1)^n)^n (z + \sqrt{2})^n = \sum_{n=0}^{\infty} (\sqrt{5} + (-1)^n)^n \cdot (z - (\textcolor{brown}{-\sqrt{2}}))^n \quad \textcolor{red}{\sqrt{5}-1} \quad \textcolor{green}{\sqrt{5}+1} \quad \frac{1}{\sqrt{5}+1} \quad \textcolor{brown}{-\sqrt{2}}$$

$$\text{P 22} \quad \sum_{j=2}^{\infty} 7^j \left(\frac{1}{3} z - 2i + 1 \right)^j = \sum_{j=2}^{\infty} \left(\frac{7}{3} \right)^j \cdot (z - (\textcolor{brown}{6i} - \textcolor{brown}{3}))^j \quad \dashrightarrow \quad \text{P 03} \quad \frac{3}{7} \quad \textcolor{brown}{6i} - \textcolor{brown}{3}$$