1 Bessel functions

1.1 Bessel functions

$$J_\nu(z) = \left(\frac{z}{2}\right)^\nu \sum_{k=0}^{\infty} \frac{(-1)^k}{k!\,\Gamma(\nu+k+1)} \left(\frac{z}{2}\right)^{2k} \tag{17.1.2a}$$

$$\mathrm{j}_n(z) = \sqrt{\frac{\pi}{2z}} \left(\frac{z}{2}\right)^{n+\frac{1}{2}} \sum_{k=0}^{\infty} \frac{(-1)^k}{k!\,\Gamma\big(\big(n+\frac{1}{2}\big)+k+1\big)} \left(\frac{z}{2}\right)^{2k} \tag{17.1.12a}$$

$$J_\nu(z) = \frac{e^{-iz}\left(\frac{z}{2}\right)^\nu}{\Gamma(\nu+1)} \sum_{k=0}^{\infty} \frac{\left(\nu+\frac{1}{2}\right)_k (2i)^k z^k}{(2\nu+1)_k k!} \tag{17.1.22}$$

$$\mathrm{j}_n(z) = \frac{\sqrt{\pi}}{(2n+1)\,\Gamma\big(n+\frac{1}{2}\big)} \left(\frac{z}{2}\right)^n \sum_{k=0}^{\infty} \frac{\frac{1}{\left(n+\frac{3}{2}\right)_k}\left(-\frac{z^2}{4}\right)^k}{k!} \tag{17.1.25}$$

$$\mathrm{j}_n(z) = \frac{\sqrt{\pi}e^{-iz}}{(2n+1)\,\Gamma\big(n+\frac{1}{2}\big)} \left(\frac{z}{2}\right)^n \sum_{k=0}^{\infty} \frac{\frac{(n+1)_k}{(2n+2)_k}(2iz)^k}{k!} \tag{17.1.26}$$

$$J_\nu(z) = \sqrt{\frac{2}{\pi z}} \sum_{k=0}^{\infty} \left(\frac{(-1)^k (\nu,2k)}{(2z)^{2k}} \cos\left(z - \left(\frac{\nu}{2}+\frac{1}{4}\right)\pi\right) - \frac{(-1)^k (\nu,2k+1)}{(2z)^{2k+1}} \sin\left(z - \left(\frac{\nu}{2}+\frac{1}{4}\right)\pi\right) \right) \tag{17.1.28}$$

$$Y_\nu(z) = \sqrt{\frac{2}{\pi z}} \sum_{k=0}^{\infty} \left(\frac{(-1)^k (\nu,2k)}{(2z)^{2k}} \sin\left(z - \left(\frac{\nu}{2}+\frac{1}{4}\right)\pi\right) + \frac{(-1)^k (\nu,2k+1)}{(2z)^{2k+1}} \cos\left(z - \left(\frac{\nu}{2}+\frac{1}{4}\right)\pi\right) \right) \tag{17.1.29}$$

$$\frac{J_{\nu+1}(z)}{J_\nu(z)} = \frac{\frac{z}{2\nu+2}}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{\frac{(iz)^2}{4(\nu+m-1)(\nu+m)}}{1} \tag{17.1.38}$$

$$\frac{\mathrm{j}_{n+1}(z)}{\mathrm{j}_n(z)} = \frac{\frac{z}{2n+3}}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{\frac{(iz)^2}{4\left(n+\frac{1}{2}+m-1\right)\left(n+\frac{1}{2}+m\right)}}{1} \tag{17.1.39}$$

$$\frac{J_{\nu+1}(z)}{J_\nu(z)} = -\operatorname*{K}_{m=1}^{\infty} \frac{-1}{\frac{2(\nu+m)}{z}} \tag{17.1.40}$$

$$\frac{H^{(1)}_{\nu+1}(z)}{H^{(1)}_\nu(z)} = \frac{-1}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{\frac{m-3-2\nu}{-2iz}}{1} \tag{17.1.44}$$

$$\frac{J_{\nu+1}(z)}{J_\nu(z)} = \frac{z}{2\nu+2-iz} + \operatorname*{K}_{m=2}^{\infty} \frac{(2\nu+2m-1)\,iz}{2\nu+m+1+(-2i)\,z} \tag{17.1.48}$$

$$\frac{\mathsf{j}_{n+1}(z)}{\mathsf{j}_n(z)} = \frac{z}{2n+3-iz} + \operatorname*{K}_{m=2}^{\infty} \frac{2\,(n+m)\,iz}{2n+m+2+(-2i)\,z} \tag{17.1.49}$$

$$\frac{H^{(1)}_{\nu+1}(z)}{H^{(1)}_{\nu}(z)} = \frac{2\nu+1-2iz}{2z} - \frac{1}{z}\operatorname*{K}_{m=1}^{\infty} \frac{\nu^2 - \frac{(2m-1)^2}{4}}{2\,(iz-m)} \tag{17.1.51}$$

1.2 Modified Bessel functions

$$I_\nu(z) = \left(\frac{z}{2}\right)^\nu \sum_{k=0}^{\infty} \frac{\left(\frac{z}{2}\right)^{2k}}{k!\,\Gamma(\nu+k+1)} \tag{17.2.20}$$

$$I_\nu(z) = \frac{e^{-z}\left(\frac{z}{2}\right)^\nu}{\Gamma(\nu+1)} \sum_{k=0}^{\infty} \frac{\left(\nu+\frac{1}{2}\right)_k 2^k z^k}{(2\nu+1)_k k!} \tag{17.2.21}$$

$$\mathsf{i}^{(1)}_n(z) = \frac{\sqrt{\pi}}{(2n+1)\,\Gamma\!\left(n+\frac{1}{2}\right)} \left(\frac{z}{2}\right)^n \sum_{k=0}^{\infty} \frac{\left(\frac{z^2}{4}\right)^k}{k!\left(n+\frac{3}{2}\right)_k} \tag{17.2.22}$$

$$\mathsf{i}^{(1)}_n(z) = \frac{\sqrt{\pi}e^{-iz}}{(2n+1)\,\Gamma\!\left(n+\frac{1}{2}\right)} \left(\frac{z}{2}\right)^n \sum_{k=0}^{\infty} \frac{(n+1)_k\,(2z)^k}{k!(2n+2)_k} \tag{17.2.23}$$

$$I_\nu(z) = \sum_{k=0}^{\infty} \left(\frac{\left((-1)^k e^z + e^{-z+\frac{(2\nu+1)i\pi}{2}}\right)(\nu,k)}{\sqrt{2\pi z}\,(2z)^k} \right) \tag{17.2.24}$$

$$I_\nu(z) = \sum_{k=0}^{\infty} \left(\frac{\left((-1)^k e^z + e^{-z-\frac{(2\nu+1)i\pi}{2}}\right)(\nu,k)}{\sqrt{2\pi z}\,(2z)^k} \right) \tag{17.2.25}$$

$$K_\nu(z) = \sqrt{\frac{\pi}{2z}}e^{-z} \sum_{k=0}^{\infty} \left(\frac{(\nu,k)}{(-2z)^k} \right) \tag{17.2.27}$$

$$\frac{I_{\nu+1}(z)}{I_\nu(z)} = \frac{\frac{z}{2(\nu+1)}}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{\frac{1}{4(\nu+m-1)(\nu+m)}z^2}{1} \tag{17.2.32}$$

$$\frac{\mathsf{i}^{(1)}_{n+1}(z)}{\mathsf{i}^{(1)}_n(z)} = \frac{\frac{z}{2n+3}}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{\frac{1}{4\left(\left(n+\frac{1}{2}\right)+m-1\right)\left(\left(n+\frac{1}{2}\right)+m\right)}z^2}{1} \tag{17.2.33}$$

$$\frac{\nu}{z} - \frac{K_{\nu+1}(z)}{K_\nu(z)} = \frac{1}{1} + \frac{\frac{-2\nu-1}{2z}}{1} - \operatorname*{K}_{m=3}^{\infty} \frac{\frac{\frac{m}{2}+\nu}{2z}}{1} \tag{17.2.34}$$

$$\frac{I_{\nu+1}(z)}{I_\nu(z)} = \frac{z}{2\nu+2+z} + \operatorname*{K}_{m=2}^{\infty} \frac{-\,(2\nu+2m-1)\,z}{2\nu+m+1+2z} \tag{17.2.38}$$

$$\frac{\mathsf{i}^{(1)}_{n+1}(z)}{\mathsf{i}^{(1)}_{n}(z)} = \frac{z}{2n+3+z} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{-2\,(n+m)\,z}{2n+m+2+2z} \tag{17.2.39}$$

$$\frac{\nu}{z} - \frac{K_{\nu+1}(z)}{K_{\nu}(z)} = \frac{\nu}{z} - \frac{2\nu+1+2z}{2z} - \frac{1}{z} \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{\nu^2 - \frac{(2m-1)^2}{4}}{2\,(z+m)} \tag{17.2.40}$$

2 Confluent hypergeometric functions

2.1 Confluent hypergeometric series ${}_2F_0$

$$\frac{{}_2F_0(a,b;;z)}{{}_2F_0(a,b+1;;z)} = 1 + \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{-\left(b+\frac{m}{2}\right)z}{1} \tag{16.2.4}$$

2.2 Confluent hypergeometric limit function

$${}_0F_1(;b;z) = \sum_{k=0}^{\infty} \frac{z^k}{(b)_k k!} \tag{16.3.1}$$

$$\frac{{}_0F_1(;b;z)}{{}_0F_1(;b+1;z)} = 1 + \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{\frac{1}{(b+m-1)(b+m)}z}{1} \tag{16.3.4}$$

$$\frac{{}_0F_1(;b;z)}{{}_0F_1(;b+1;z)} = 1 + \frac{\sqrt{z}}{b} + \frac{1}{2b} \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{-2\,(2b+2m-1)\sqrt{z}}{2b+m+4\sqrt{z}} \tag{16.3.6}$$

2.3 Kummer functions

$${}_1F_1(a;b;z) = \sum_{k=0}^{\infty} \frac{\frac{(a)_k}{(b)_k} z^k}{k!} \tag{16.1.2}$$

$${}_2F_0(a,b;;z) = \sum_{k=0}^{\infty} \frac{(a)_k (b)_k z^k}{k!} \tag{16.1.12}$$

$$\frac{{}_1F_1(a;b;z)}{{}_1F_1(a+1;b+1;z)} = 1 + \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{\frac{z\left(a+\frac{m}{2}\right)}{(b+m-1)(b+m)}}{1} \tag{16.1.13}$$

$$z\,{}_1F_1(1;b+1;z) = \frac{z}{1} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{-\frac{z\left(b+\frac{m}{2}-1\right)}{(b+m-2)(b+m-1)}}{1} \tag{16.1.14}$$

$$\frac{{}_1F_1(a;b;z)}{{}_1F_1(a+1;b+1;z)} = \frac{b-z}{b} + \frac{1}{b} \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{(a+m)\,z}{b+m-z} \tag{16.1.16}$$

$${}_1F_1(1;b+1;z) = \frac{b}{b-z} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{(m-1)\,z}{b+m-1-z} \tag{16.1.17}$$

$$\frac{U(a,b,z)}{U(a+1,b,z)} = 2a-b+2+z-\mathop{\mathrm{K}}_{m=1}^{\infty}\frac{(a+m)(b-a-m-1)}{b-2a-2m-2-z} \tag{16.1.20}$$

2.4 Parabolic cylinder functions

$$\frac{U(a,x)}{U(a-1,x)} = \frac{1}{x} + \mathop{\mathrm{K}}_{m=2}^{\infty}\frac{a+(m-1)-\frac{1}{2}}{x} \tag{16.5.7}$$

2.5 Whittaker functions

$$W_{\kappa,\mu}(z) = e^{-z^2} z^{\kappa}\sum_{k=0}^{\infty}\left(\frac{\left(-\kappa-\mu+\frac{1}{2}\right)_k\left(-\kappa+\mu+\frac{1}{2}\right)_k(-z)^{-k}}{k!}\right) \tag{16.4.7}$$

$$functions: WhittakerPsi\,(\alpha,\beta,z) = \sum_{k=0}^{\infty}\left(\frac{\left(\alpha+\frac{1}{2}\right)_k\left(\beta+\frac{1}{2},k\right)z^{-k-1}}{k!}\right) \tag{16.4.12}$$

3 Mathematical constants

3.1 Apéry's constant, $\zeta(3)$

$$\zeta(z) = \sum_{k=0}^{\infty}\frac{1}{(k+1)^z} \tag{10.11.1}$$

$$\zeta(3) = \sum_{k=0}^{\infty}(-1)^k\left(\frac{(k!)^{10}\left(205k^2+250k+77\right)}{64\left((2k+1)!\right)^5}\right) \tag{10.11.3}$$

$$\zeta(3) = \frac{6}{5} + \mathop{\mathrm{K}}_{m=2}^{\infty}\frac{-(m-1)^6}{34(m-1)^3+51(m-1)^2+27(m-1)+5} \tag{10.11.5}$$

$$\zeta(3) = \frac{1}{22} + \mathop{\mathrm{K}}_{m=2}^{\infty}\frac{\left(\frac{m}{2}\right)^3}{1} \quad ()$$

$$\zeta(3) = \frac{1}{2k^2+2k+1} + \mathop{\mathrm{K}}_{m=2}^{\infty}\frac{-(m-1)^6}{(m-1)^3+m^3+(2m-1)(2k^2+2k)} \quad ()$$

$$\zeta(3) = \frac{1}{5} + \mathop{\mathrm{K}}_{m=2}^{\infty}\frac{-(m-1)^6}{2(m-1)^3+3(m-1)^2+11(m-1)+5} \quad ()$$

$$\zeta(3) = \frac{1}{4+}\frac{1}{1+}\frac{1}{18+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{4+}\frac{1}{1+}\frac{1}{9+}\frac{1}{9+}\frac{1}{2+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{2+}\frac{1}{7+}\frac{1}{1+}\frac{1}{1+}\frac{1}{7+}\frac{1}{11+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{3+}\frac{1}{1+}\frac{1}{6+}\frac{1}{1} \tag{10.11.4}$$

3.2 Archimedes' constant, symbol π

$$\pi = 4\sum_{k=0}^{\infty} \frac{(-1)^k}{2k+1} \tag{10.2.1}$$

$$\pi = \frac{1}{7+}\,\frac{1}{15+}\,\frac{1}{1+}\,\frac{1}{292+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{2+}\,\frac{1}{1+}\,\frac{1}{3+}\,\frac{1}{1+}\,\frac{1}{14+}\,\frac{1}{2+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{2+}\,\frac{1}{2+}\,\frac{1}{2+}\,\frac{1}{2+}\,\frac{1}{1+}\,\frac{1}{84+}\,\frac{1}{2+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{15+}\,\frac{1}{3+} \tag{10.2.4}$$

$$\pi = \frac{4}{1} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{(m-1)^2}{2m-1} \tag{10.2.5}$$

$$\pi = 3 + \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{(2m-1)^2}{6} \tag{10.2.6}$$

$$P = \frac{1}{1} + 2\mathop{\mathrm{K}}_{m=2}^{\infty} \frac{(m-1)\,m}{1} \tag{}$$

$$\pi = \frac{4}{4k+1} + 2^{4k}\left(\frac{(k!)^2}{2k}!\right)^2 \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{(2m-3)^2}{8k+2} \tag{}$$

$$\pi = \frac{4}{1} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{(2m-3)^2}{2} \tag{}$$

$$\pi = \frac{4}{4+1} + 4\mathop{\mathrm{K}}_{m=2}^{\infty} \frac{(2m-3)^2}{8+2} \tag{}$$

3.3 Catalan's constant, symbol C

$$G = \sum_{k=0}^{\infty} \frac{(-1)^k}{(2k+1)^2} \tag{10.12.1}$$

$$G = \frac{1}{1+}\,\frac{1}{10+}\,\frac{1}{1+}\,\frac{1}{8+}\,\frac{1}{1+}\,\frac{1}{88+}\,\frac{1}{4+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{7+}\,\frac{1}{22+}\,\frac{1}{1+}\,\frac{1}{2+}\,\frac{1}{3+}\,\frac{1}{26+}\,\frac{1}{1+}\,\frac{1}{11+}\,\frac{1}{1+}\,\frac{1}{10+}\,\frac{1}{1+}\,\frac{1}{9+}\,\frac{1}{3+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{1+} \tag{10.12.2}$$

$$G = \frac{1}{\frac{1}{2}} + \frac{1}{2}\mathop{\mathrm{K}}_{m=2}^{\infty} \frac{\left(\frac{m}{2}\right)^2}{\frac{1}{2}} \tag{10.12.3}$$

$$G = \frac{\frac{13}{2}}{7} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{(2m-3)^4\,(2m-2)^4\left(20\,(m-2)^2 - 8\,(m-2) + 1\right)\left(20\,(m)^2 - 8\,(m) + 1\right)}{3520\,(m-1)^6 + 5632\,(m-1)^5 + 2064\,(m-1)^4 - 384\,(m-1)^3 - 156\,(m-1)^2 + 16\,(m-1) + 7} \tag{10.12.5}$$

$$G = \frac{-1}{3} + \frac{1}{2}\mathop{\mathrm{K}}_{m=2}^{\infty} \frac{m^2}{1} \tag{}$$

3.4 Euler's constant, symbol γ

$$\gamma = -\log n + \sum_{k=0}^{\infty} \frac{1}{k} \tag{10.8.1}$$

$$\gamma = \frac{1}{1+} \frac{1}{1+} \frac{1}{2+} \frac{1}{1+} \frac{1}{2+} \frac{1}{1+} \frac{1}{4+} \frac{1}{3+} \frac{1}{13+} \frac{1}{5+} \frac{1}{1+} \frac{1}{1+} \frac{1}{8+} \frac{1}{1+} \frac{1}{2+} \frac{1}{4+} \frac{1}{1+} \frac{1}{1+} \frac{1}{40+} \frac{1}{1+} \frac{1}{11+} \frac{1}{3+} \frac{1}{7+} \frac{1}{1+} \frac{1}{7+} \frac{1}{1+} \frac{1}{1+} \tag{}$$

3.5 Euler's number, base of the natural logarithm

$$e^1 = \sum_{k=0}^{\infty} \frac{1}{k}! \tag{10.3.1b}$$

$$e^1 = 2 + \operatorname*{K}_{m=1}^{\infty} \frac{1}{1} \tag{10.3.5}$$

$$\frac{e^1 - 1}{e^1 + 1} = \operatorname*{K}_{m=1}^{\infty} \frac{1}{(4m-2)} \tag{10.3.6}$$

$$e^1 = 2 + \operatorname*{K}_{m=1}^{\infty} \frac{m+1}{m+1} \tag{}$$

$$e^1 = \frac{2}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{1}{6 + (m-2)\,4} \tag{}$$

$$e^1 = \frac{1}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{-1}{m-1} \tag{}$$

3.6 Golden ratio, symbol ϕ

$$\phi = 1 + \operatorname*{K}_{m=1}^{\infty} \frac{1}{1} \tag{10.9.4}$$

3.7 Gompertz' constant, symbol G

$$G = \frac{1}{2} + \operatorname*{K}_{m=2}^{\infty} \frac{-(m-1)^2}{2m} \tag{10.13.1}$$

$$G = \frac{1}{1} + \operatorname*{K}_{m=2}^{\infty} \frac{\frac{m}{2}}{1} \tag{}$$

3.8 The natural logarithm, $\ln(2)$

$$ln\left(2\right) = \sum_{k=0}^{\infty} \frac{\left(-1\right)^{k} 1^{k+1}}{k+1} \tag{10.5.2}$$

$$ln\left(2\right) = \frac{1}{1} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{\left(m-1\right)^{2}}{1} \tag{10.5.3}$$

$$ln\left(2\right) = \frac{1}{1} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{\frac{m}{4m-4}}{1} \tag{10.5.4}$$

3.9 Regular continued fractions

$$\sqrt{e^{1}} = \frac{1}{1} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{1}{1]} \tag{10.4.1}$$

$$e^{\frac{1}{\alpha}} = 1 + \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{1}{\left(2\left(\frac{m+2}{3}\right)-1\right)\alpha - 1} \tag{10.4.2}$$

$$e^{\frac{1}{\alpha}} = \frac{\alpha+1}{\alpha} + \frac{1}{\alpha} \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{1}{2\alpha - 1} \tag{10.4.3}$$

$$e^{\frac{1}{\alpha}} = \frac{1}{\alpha - 1} + \frac{1}{2\alpha} + \alpha \mathop{\mathrm{K}}_{m=3}^{\infty} \frac{1}{1} \tag{10.4.4}$$

$$\sqrt{\pi} = \frac{1}{1+}\frac{1}{3+}\frac{1}{2+}\frac{1}{1+}\frac{1}{1+}\frac{1}{6+}\frac{1}{1+}\frac{1}{28+}\frac{1}{13+}\frac{1}{1+}\frac{1}{1+}\frac{1}{2+}\frac{1}{18+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{83+}\frac{1}{1+}\frac{1}{4+}\frac{1}{1+}\frac{1}{2+}\frac{1}{4+}\frac{1}{1+}\frac{1}{288+}\frac{1}{1+}\frac{1}{90}$$

()

$$e^{1}e^{1} = 7 + \mathop{\mathrm{K}}_{m=1}^{\infty} \frac{1}{\frac{3(m+4)}{5} - 1} \tag{10.4.5}$$

$$\frac{\pi^{2}}{12} = \frac{1}{1} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{\left(m-1\right)^{4}}{2m-1} \tag{10.4.6}$$

$$\frac{e^{\frac{2\alpha}{\beta}} - 1}{e^{\frac{2\alpha}{\beta}} + 1} = \frac{\alpha}{\beta} + \mathop{\mathrm{K}}_{m=2}^{\infty} \frac{\alpha^{2}}{\left(2m-1\right)\beta} \tag{10.4.7}$$

3.10 Pythagoras' constant, the square root of two

$$1+\sqrt{2} = 2 + \operatorname*{K}_{m=1}^{\infty} \frac{1}{2} \tag{10.6.3}$$

$$\left(1+\sqrt{2}\right)^2 = 5 + \operatorname*{K}_{m=1}^{\infty} \frac{1}{1} \tag{}$$

$$\left(1+\sqrt{2}\right)^3 = 14 + \operatorname*{K}_{m=1}^{\infty} \frac{1}{14} \tag{}$$

$$\left(1+\sqrt{2}\right)^4 = 33 + \operatorname*{K}_{m=1}^{\infty} \frac{1}{1} \tag{}$$

$$\left(1+\sqrt{2}\right)^5 = 82 + \operatorname*{K}_{m=1}^{\infty} \frac{1}{82} \tag{}$$

3.11 The rabbit constant, symbol ρ

$$\rho = \sum_{k=0}^{\infty} 2^{-\left\lfloor (k+1)\left(\frac{\sqrt{5}+1}{2}\right)\right\rfloor} \tag{10.10.2}$$

$$\rho = \operatorname*{K}_{m=1}^{\infty} \frac{1}{2^{F(m-1)}} \tag{10.10.5}$$

4 Elementary functions

5 Error function and related integrals

6 Exponential integrals and related functions

7 Gamma function and related functions

8 Hypergeometric functions

9 q-Hypergeometric function

10 Probability functions