Hypergeometric1F1Regularized

Notations

Traditional name

Regularized confluent hypergeometric function ${}_1\tilde{F}_1$

Traditional notation

${}_1\tilde{F}_1(a; b; z)$

Mathematica StandardForm notation

`Hypergeometric1F1Regularized[a, b, z]`

Primary definition

07.21.02.0001.01

$${}_1\tilde{F}_1(a; b; z) == \sum_{k=0}^{\infty} \frac{(a)_k\, z^k}{\Gamma(b+k)\, k!}$$

For $a = -n,\ b == -m\ /;\ m \geq n$ being nonpositive integers, the function ${}_1\tilde{F}_1(a; b; z)$ cannot be uniquely defined by a limiting procedure based on the above definition because the two variables a, b can approach nonpositive integers $-n,\ -m\ /;\ m \geq n$ at different speeds. For nonpositive integers $a = -n,\ b == -m\ /;\ m \geq n$ we define:

07.21.02.0002.01

$${}_1\tilde{F}_1(a; b; z) == \sum_{k=0}^{n} \frac{(-n)_k\, z^k}{\Gamma(k-m)\, k!}\ /;\ m \in \mathbb{N} \land n \in \mathbb{N} \land m \geq n$$

Specific values

Specialized values

For fixed *a*, *b*

07.21.03.0001.01

$${}_1\tilde{F}_1(a; b; 0) == \frac{1}{\Gamma(b)}$$

For fixed *a*, *z*

07.21.03.0002.01

$${}_1\tilde{F}_1(a; a; z) == \frac{e^z}{\Gamma(a)}$$

07.21.03.0003.01

$${}_1\tilde{F}_1(a;\, a+1;\, z) = (-z)^{-a}\,(1 - Q(a,\, -z))$$

07.21.03.0004.01

$${}_1\tilde{F}_1(a;\, a+1;\, z) = (-z)^{-a}\left(1 - \frac{\Gamma(a,\, -z)}{\Gamma(a)}\right)$$

07.21.03.0005.01

$${}_1\tilde{F}_1(a;\, a+1;\, z) = (-z)^{-a} - \frac{1}{\Gamma(a)}\, E_{1-a}(-z)$$

07.21.03.0101.01

$${}_1\tilde{F}_1(a;\, a+2;\, z) = \frac{(-z)^{-a}}{z\,\Gamma(a+2)}\,((a+1)\, e^z\, z\,(-z)^a + (a+z)\,(\Gamma(a+2) - (a+1)\,\Gamma(a+1,\, -z)))$$

07.21.03.0102.01

$${}_1\tilde{F}_1(a;\, a-n;\, z) = \frac{n!}{\Gamma(a)}\, e^z\, L_n^{a-n-1}(-z) \,/;\, n \in \mathbb{N}$$

07.21.03.0103.01

$${}_1\tilde{F}_1(a;\, a-1;\, z) = \frac{1}{\Gamma(a-1)}\, e^z\left(\frac{z}{a-1} + 1\right)$$

07.21.03.0104.01

$${}_1\tilde{F}_1(a;\, 0;\, z) = a\, z\, {}_1F_1(a+1;\, 2;\, z)$$

07.21.03.0006.01

$${}_1\tilde{F}_1(a;\, 1;\, z) = L_{-a}(z)$$

07.21.03.0007.01

$${}_1\tilde{F}_1\left(a;\, \frac{1}{2};\, z\right) - \frac{\sqrt{z}}{\Gamma(a)}\,\Gamma\left(a + \frac{1}{2}\right){}_1\tilde{F}_1\left(a + \frac{1}{2};\, \frac{3}{2};\, z\right) = \frac{2^{2a}}{\pi}\,\Gamma\left(a + \frac{1}{2}\right) H_{-2a}\left(\sqrt{z}\right)$$

07.21.03.0008.01

$${}_1\tilde{F}_1(a;\, 2a-1;\, z) = \frac{e^{z/2}\,\sqrt{\pi}}{2\,\Gamma(a)}\, z^{\frac{3}{2}-a}\left(I_{a-\frac{1}{2}}\left(\frac{z}{2}\right) + I_{a-\frac{3}{2}}\left(\frac{z}{2}\right)\right)$$

07.21.03.0009.01

$${}_1\tilde{F}_1(a;\, 2a;\, z) = \frac{\sqrt{\pi}}{\Gamma(a)}\, e^{z/2}\, z^{\frac{1}{2}-a}\, I_{a-\frac{1}{2}}\left(\frac{z}{2}\right)$$

07.21.03.0010.01

$${}_1\tilde{F}_1(a;\, 2a;\, z) = \frac{1}{\Gamma(2a)}\, e^{z/2}\, {}_0F_1\left(;\, a + \frac{1}{2};\, \frac{z^2}{16}\right)$$

07.21.03.0011.01

$${}_1\tilde{F}_1(a;\, 2a+1;\, z) = \frac{e^{z/2}\,\sqrt{\pi}}{2\,\Gamma(a+1)}\, z^{\frac{1}{2}-a}\left(I_{a-\frac{1}{2}}\left(\frac{z}{2}\right) - I_{a+\frac{1}{2}}\left(\frac{z}{2}\right)\right)$$

07.21.03.0012.01

$${}_1\tilde{F}_1(a;\, 2a-n;\, z) = \frac{\Gamma\left(a - n - \frac{1}{2}\right)}{\Gamma(2a-n)}\left(\frac{z}{4}\right)^{\frac{1}{2}+n-a} e^{z/2} \sum_{k=0}^{n} \frac{(-1)^k\,(-n)_k\,(2a-2n-1)_k\,\left(a + k - n - \frac{1}{2}\right)}{(2a-n)_k\, k!}\, I_{a+k-n-\frac{1}{2}}\left(\frac{z}{2}\right) \,/;\, n \in \mathbb{N}$$

07.21.03.0013.01

$$ {}_1\tilde{F}_1(a;\,2\,a+n;\,z) = \frac{\Gamma\left(a-\frac{1}{2}\right)}{\Gamma(2\,a+n)} \left(\frac{z}{4}\right)^{\frac{1}{2}-a} e^{z/2} \sum_{k=0}^{n} \frac{(-n)_k\,(2\,a-1)_k \left(a+k-\frac{1}{2}\right)}{(2\,a+n)_k\,k!} I_{a+k-\frac{1}{2}}\left(\frac{z}{2}\right) /;\, n \in \mathbb{N} $$

For fixed *b*, *z*

07.21.03.0014.01

$$ {}_1\tilde{F}_1(-2;\,b;\,z) = \frac{1}{\Gamma(b)} \left(1 - \frac{2\,z}{b} + \frac{z^2}{b\,(1+b)}\right) $$

07.21.03.0015.01

$$ {}_1\tilde{F}_1(-1;\,b;\,z) = \frac{b-z}{\Gamma(b+1)} $$

07.21.03.0016.01

$$ {}_1\tilde{F}_1(0;\,b;\,z) = \frac{1}{\Gamma(b)} $$

07.21.03.0017.01

$$ {}_1\tilde{F}_1(1;\,b;\,z) = z^{1-b}\,e^z\,(1 - Q(b-1,\,z)) $$

07.21.03.0018.01

$$ {}_1\tilde{F}_1(2;\,b;\,z) = \frac{1}{\Gamma(b-1)} \left(1 + e^z\,z^{1-b}\,(2-b+z)\,\Gamma(b-1,\,0,\,z)\right) $$

07.21.03.0019.01

$$ {}_1\tilde{F}_1(-n;\,b;\,z) = \frac{n!}{\Gamma(b+n)} L_n^{b-1}(z) $$

07.21.03.0020.01

$$ {}_1\tilde{F}_1(n;\,b;\,z) = \frac{1}{(n-1)!} \frac{\partial^{n-1}\left(z^{n-b}\,e^z\,(1-Q(b-1,\,z))\right)}{\partial z^{n-1}} /;\, n \in \mathbb{N}^+ $$

07.21.03.0105.01

$$ {}_1\tilde{F}_1(-n;\,-n;\,z) = \sum_{k=0}^{n} \frac{(-n)_k\,z^k}{\Gamma(k-n)\,k!} /;\, n \in \mathbb{N} $$

For fixed *z* and integer parameters

07.21.03.0021.01

$$ {}_1\tilde{F}_1(n;\,m;\,z) = \frac{(2-m)_{n-1}\,z^{1-m}}{(n-1)!} \left(e^z \sum_{k=0}^{n-1} \frac{(1-n)_k\,(-z)^k}{k!\,(2-m)_k} - \sum_{k=0}^{m-n-1} \frac{(1-m+n)_k\,z^k}{k!\,(2-m)_k}\right) /;\, m \in \mathbb{N}^+ \land n \in \mathbb{N}^+ \land m > n $$

07.21.03.0022.01

$$ {}_1\tilde{F}_1(n;\,m;\,z) = \frac{e^z}{(m-1)!} \sum_{k=0}^{n-m} \frac{(m-n)_k\,(-z)^k}{k!\,(m)_k} /;\, m \in \mathbb{N}^+ \land n \in \mathbb{N}^+ \land m \le n $$

07.21.03.0023.01

$$ {}_1\tilde{F}_1(n;\,n+1;\,z) = \frac{(-1)^n}{z^n} \left(1 - e^z \sum_{k=0}^{n-1} \frac{(-z)^k}{k!}\right) /;\, n \in \mathbb{N} $$

07.21.03.0024.01

$${}_1\tilde{F}_1(1;\, m;\, z) = z^{1-m}\left(e^z - \sum_{k=0}^{m-2} \frac{z^k}{k!}\right) /;\, m \in \mathbb{N}^+$$

07.21.03.0025.01

$${}_1\tilde{F}_1(2;\, m;\, z) = (z + 2 - m)\, z^{1-m}\left(e^z - \sum_{k=0}^{m-3} \frac{z^k}{k!}\right) + \frac{(m-2)(m-1)}{z} /;\, m \in \mathbb{N}^+$$

07.21.03.0026.01

$${}_1\tilde{F}_1\left(-n;\, \frac{1}{2};\, z\right) = \frac{(-1)^n\, n!}{\sqrt{\pi}\, (2n)!} H_{2n}\left(\sqrt{z}\right) /;\, n \in \mathbb{N}$$

07.21.03.0027.01

$${}_1\tilde{F}_1\left(-n;\, \frac{3}{2};\, z\right) = \frac{(-1)^n\, n!}{\sqrt{\pi}\, (2n+1)!\, \sqrt{z}} H_{2n+1}\left(\sqrt{z}\right) /;\, n \in \mathbb{N}$$

For fixed z

For fixed z and $a = -\frac{11}{2}$

07.21.03.0106.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -\frac{11}{2};\, z\right) = \frac{10\,395\, e^z}{64\sqrt{\pi}}$$

07.21.03.0107.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -5;\, z\right) = \frac{1}{8} e^{z/2}\, z\left(z\,(z\,(z\,(4\,z\,(z+2)+27)+72)+120)\, I_0\left(\frac{z}{2}\right) - \left(z\left(z\,(z+3)\left(4\,z^2+41\right)+288\right)+480\right) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0108.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -\frac{9}{2};\, z\right) = z^{11/2}\, \text{erfi}\left(\sqrt{z}\right) - \frac{e^z\left(2\,z\left(2\,z\left(8\,z^3+4\,z^2+6\,z+15\right)+105\right)+945\right)}{32\sqrt{\pi}}$$

07.21.03.0109.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -\frac{9}{2};\, -z\right) = \text{erf}\left(\sqrt{z}\right) z^{11/2} + \frac{e^{-z}\left(2\,z\left(2\,z\left(8\,z^3-4\,z^2+6\,z-15\right)+105\right)-945\right)}{32\sqrt{\pi}}$$

07.21.03.0110.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -4;\, z\right) = \frac{1}{8} e^{z/2}\, z\left(z\,(z\,(4\,z\,(z\,(2\,z-7)-3)-21)-24)\, I_0\left(\frac{z}{2}\right) + (z\,(z\,(4\,z\,((5-2\,z)\,z+7)+51)+84)+96)\, I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0111.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -\frac{7}{2};\, z\right) = \frac{8\sqrt{\pi}\, (2\,z-11)\, \text{erfi}\left(\sqrt{z}\right) z^{9/2} + e^z\, (4\,z\,(z\,(9-4\,z\,((z-5)\,z-2))+15)+105)}{16\sqrt{\pi}}$$

07.21.03.0112.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -\frac{7}{2};\, -z\right) = \frac{e^{-z}\left(8\,e^z\sqrt{\pi}\, (2\,z+11)\, \text{erf}\left(\sqrt{z}\right) z^{9/2} + 4\,(z\,(4\,z\,(z\,(z+5)-2)+9)-15)\,z+105\right)}{16\sqrt{\pi}}$$

07.21.03.0113.01

$${}_1\tilde{F}_1\left(-\frac{11}{2};\, -3;\, z\right) = \frac{1}{12} e^{z/2}\, z\left(z\,(4\,z\,(2\,z\,((z-9)\,z+15)+3)+9)\, I_0\left(\frac{z}{2}\right) - 4\,((z-2)\,z\,(z\,(2\,(z-6)\,z-9)-6)+9)\, I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0114.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -\frac{5}{2}; z\right) = \frac{\sqrt{\pi}\; z^{7/2}\,(4\,(z-11)\,z+99)\,\mathrm{erfi}\left(\sqrt{z}\right) - e^z\,(2\,z\,(z\,((z-8)\,z\,(2\,z-5)+12)+9)+15)}{8\sqrt{\pi}}$$

07.21.03.0115.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -\frac{5}{2}; -z\right) = \frac{e^{-z}\left(e^z\sqrt{\pi}\;(4\,z\,(z+11)+99)\,\mathrm{erf}\left(\sqrt{z}\right)z^{7/2} + 2\,(z+3)\,(z\,(z\,(2\,z+15)-5)+3)\,z-15\right)}{8\sqrt{\pi}}$$

07.21.03.0116.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -2; z\right) = \frac{1}{60}\,e^{z/2}\,z\left(z\left(4\,z\left(z\left(4\,z^2-58\,z+225\right)-225\right)-15\right)I_0\left(\frac{z}{2}\right) + \left(z\left(4\,z\left(z\left(-4\,z^2+54\,z-173\right)+75\right)+135\right)+60\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0117.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -\frac{3}{2}; z\right) = \frac{1}{48\sqrt{\pi}}\left(\sqrt{\pi}\;z^{5/2}\left(2\,z\left(4\,z^2-66\,z+297\right)-693\right)\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^z\,(z\,(z\,(z\,(4\,(z-16)\,z+267)-240)-48)-18)\right)$$

07.21.03.0118.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -\frac{3}{2}; -z\right) = \frac{1}{48\sqrt{\pi}}\left(e^{-z}\left(e^z\sqrt{\pi}\;\left(2\,z\left(4\,z^2+66\,z+297\right)+693\right)\mathrm{erf}\left(\sqrt{z}\right)z^{5/2} + 2\,(z\,(z\,(4\,z\,(z+16)+267)+240)-48)\,z+36\right)\right)$$

07.21.03.0119.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -1; z\right) = \frac{1}{210}\,e^{z/2}\,z\left(z\,(4\,z\,(z\,(4\,(z-20)\,z+489)-1050)+2625)\,I_0\left(\frac{z}{2}\right) - (z\,(4\,(z-3)\,z\,(4\,(z-16)\,z+223)+525)+105)\,I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0120.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -\frac{1}{2}; z\right) = \frac{1}{384\sqrt{\pi}}\left(\sqrt{\pi}\;z^{3/2}\,(8\,z\,(z\,(2\,(z-22)\,z+297)-693)+3465)\,\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^z\left(z\left(z\left(2\,z\left(4\,z^2-86\,z+553\right)-2295\right)+960\right)+96\right)\right)$$

07.21.03.0121.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; -\frac{1}{2}; -z\right) = \frac{1}{384\sqrt{\pi}}\left(e^{-z}\left(e^z\sqrt{\pi}\;(8\,z\,(z\,(2\,z\,(z+22)+297)+693)+3465)\,\mathrm{erf}\left(\sqrt{z}\right)z^{3/2} + 2\left(z\left(z\left(2\,z\left(4\,z^2+86\,z+553\right)+2295\right)+960\right)-96\right)\right)\right)$$

07.21.03.0122.01

$${}_1\tilde{F}_1\left(-\frac{11}{2}; 0; z\right) = \frac{1}{1890}\left(e^{z/2}\,z\left((2\,z\,(2\,z\,(4\,z\,(z\,(2\,z-51)+426)-5631)+14\,175)-10\,395)\,I_0\left(\frac{z}{2}\right) + (945-2\,z\,(2\,z\,(4\,z\,(z\,(2\,z-49)+378)-4209)+6927))\,I_1\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0123.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{1}{2};z\right)=\frac{1}{3840\sqrt{\pi}}\left(\sqrt{\pi}\sqrt{z}\,(2z(4z(2z(z(2z-55)+495)-3465)+17325)-10395)\operatorname{erfi}\left(\sqrt{z}\right)-2e^z(z(4z(2z(2(z-27)z+469)-3045)+12645)-1920)\right) $$

07.21.03.0124.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{1}{2};-z\right)=\frac{1}{3840\sqrt{\pi}}\left(e^{-z}\left(2z(4z(2z(2z(z+27)+469)+3045)+12645)+e^z\sqrt{\pi}\sqrt{z}\,(2z(4z(2z(z(2z+55)+495)+3465)+17325)+10395)\operatorname{erf}\left(\sqrt{z}\right)+3840\right)\right) $$

07.21.03.0125.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};1;z\right)=\frac{1}{10395}\left(e^{z/2}\left((2z(z(8z(z(2(z-31)z+657)-2934)+44337)-31185)+10395)I_0\left(\frac{z}{2}\right)+2z(z(-16z(z((z-30)z+299)-1182)-27387)+9762)I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0126.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{3}{2};z\right)=\frac{1}{46080\sqrt{\pi}\sqrt{z}}\left(\sqrt{\pi}\,(4z(z(4z(z(4(z-33)z+1485)-6930)+51975)-31185)+10395)\operatorname{erfi}\left(\sqrt{z}\right)-2e^z\sqrt{z}\,(2z(4z(2z(z(2z-65)+711)-6279)+41685)-35685)\right) $$

07.21.03.0127.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{3}{2};-z\right)=\frac{1}{46080\sqrt{\pi}\sqrt{z}}\left(e^{-z}\left(2\sqrt{z}\,(2z(4z(2z(z(2z+65)+711)+6279)+41685)+35685)+e^z\sqrt{\pi}\,(4z(z(4z(z(4z(z+33)+1485)+6930)+51975)+31185)+10395)\operatorname{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0128.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};2;z\right)=\frac{1}{135135}\left(e^{z/2}\left((2z(4z(2z(z(2z(2z-73)+1875)-10554)+53139)-218295)+135135)I_0\left(\frac{z}{2}\right)+(2z(95721-4z(2z(z(2z(2z-71)+1735)-8886)+36843))-10395)I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0129.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{5}{2};z\right)=\frac{1}{645120\sqrt{\pi}\,z^{3/2}}\left(\sqrt{\pi}\,(2z(2z(2z(2z(2z(2z(2z-77)+2079)-24255)+121275)-218295)+72765)+10395)\operatorname{erfi}\left(\sqrt{z}\right)-2e^z\sqrt{z}\,(4z(z(4z(z(4(z-38)z+2005)-11196)+102207)-72870)+10395)\right) $$

07.21.03.0130.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{5}{2};-z\right)=\frac{1}{645120\sqrt{\pi}\,z^{3/2}}\left(e^{-z}\left(2\sqrt{z}\,(4z(z(4z(z(4z(z+38)+2005)+11196)+102207)+72870)+10395)+e^z\sqrt{\pi}\,(2z(2z(2z(2z(2z(2z(2z+77)+2079)+24255)+121275)+218295)+72765)-10395)\operatorname{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0131.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};3;z\right)=\frac{1}{2027025\,z}\left(2\,e^{z/2}\left(z\,(8\,z\,(z\,(2\,z\,(z\,(4\,(z-42)\,z+2535)-17220)+108315)-145530)+509355)\,I_0\left(\frac{z}{2}\right)-(z\,(8\,z\,(z\,(2\,z\,(z\,(4\,(z-41)\,z+2373)-14925)+80535)-76095)+72765)+10395)\,I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0132.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{7}{2};z\right)=\frac{1}{10321920\sqrt{\pi}\,z^{5/2}}\left(\sqrt{\pi}\,(16\,z\,(z\,(2\,z\,(z\,(8\,z\,(z\,((z-44)\,z+693)-4851)+121275)-145530)+72765)+10395)+31185)\,\operatorname{erfi}\left(\sqrt{z}\right)-2\,e^z\sqrt{z}\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z-87)+2687)-36285)+210843)-422709)+72765)+31185)\right) $$

07.21.03.0133.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{7}{2};-z\right)=\frac{1}{10321920\sqrt{\pi}\,z^{5/2}}\left(e^{-z}\left(2\sqrt{z}\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z+87)+2687)+36285)+210843)+422709)+72765)-31185)+e^z\sqrt{\pi}\,(16\,z\,(z\,(2\,z\,(z\,(8\,z\,(z\,(z\,(z+44)+693)+4851)+121275)+145530)+72765)-10395)+31185)\,\operatorname{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0134.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};4;z\right)=\frac{1}{34459425\,z^2}\left(2\,e^{z/2}\left(z\,(8\,z\,(z\,(2\,z\,(z\,(4\,z\,(z\,(2\,z-95)+1647)-52425)+197745)-654885)+363825)+10395)\,I_0\left(\frac{z}{2}\right)-(z\,(8\,z\,(z\,(2\,z\,(z\,(4\,z\,(z\,(2\,z-93)+1555)-46383)+154125)-382695)+72765)+155925)+41580)\,I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0135.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{9}{2};z\right)=\frac{1}{185794560\sqrt{\pi}\,z^{7/2}}\left(\sqrt{\pi}\,(2\,z\,(8\,z\,(2\,z\,(z\,(2\,z\,(4\,z\,(z\,(z\,(2\,z-99)+1782)-14553)+218295)-654885)+218295)+93555)+280665)+155925)\,\operatorname{erfi}\left(\sqrt{z}\right)-2\,e^z\sqrt{z}\,(4\,z\,(4\,z\,(z\,(2\,z\,(2\,z\,(4\,z\,((z-49)\,z+867)-27465)+193845)-501903)+72765)+114345)+155925)\right) $$

07.21.03.0136.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{9}{2};-z\right)=\frac{1}{185794560\sqrt{\pi}\,z^{7/2}}\left(e^{-z}\left(2\sqrt{z}\,(4\,z\,(4\,z\,(z\,(2\,z\,(2\,z\,(4\,z\,(z\,(z+49)+867)+27465)+193845)+501903)+72765)-114345)+155925)+e^z\sqrt{\pi}\,(2\,z\,(8\,z\,(2\,z\,(z\,(2\,z\,(4\,z\,(z\,(2\,z+99)+1782)+14553)+218295)+654885)+218295)-93555)+280665)-155925)\,\operatorname{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0137.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};5;z\right)=\frac{1}{654\,729\,075\,z^3}\left(4\,e^{z/2}\left(z\,(8\,z\,(2\,z\,(z\,(2\,z\,(2\,z\,(2\,z\,((z-53)\,z+1038)-18\,939)+166\,605)-654\,885)+436\,590)+10\,395)+31\,185)\,I_0\left(\frac{z}{2}\right)-4\,(2\,z\,(z\,(z\,(2\,z\,(z\,(4\,z\,(z\,(2\,(z-52)\,z+1973)-17\,016)+268\,701)-413\,520)+218\,295)+83\,160)+41\,580)+31\,185)\,I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0138.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{11}{2};z\right)=\frac{1}{3\,715\,891\,200\,\sqrt{\pi}\,z^{9/2}}\left(\sqrt{\pi}\,(4\,z\,(z\,(8\,z\,(z\,(4\,z\,(z\,(2\,z\,(z\,(4\,(z-55)\,z+4455)-41\,580)+363\,825)-654\,885)+1\,091\,475)+311\,850)+1\,403\,325)+779\,625)+1\,091\,475)\,\mathrm{erfi}\left(\sqrt{z}\right)-2\,e^z\,\sqrt{z}\,(2\,z\,(8\,z\,(2\,z\,(z\,(2\,z\,(4\,z\,(z\,(z\,(2\,z-109)+2174)-19\,755)+328\,155)-1\,042\,575)+218\,295)+239\,085)+1\,195\,425)+1\,091\,475)\right) $$

07.21.03.0139.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};\frac{11}{2};-z\right)=\frac{1}{3\,715\,891\,200\,\sqrt{\pi}\,z^{9/2}}\left(e^{-z}\left(2\,\sqrt{z}\,(2\,z\,(8\,z\,(2\,z\,(z\,(2\,z\,(4\,z\,(z\,(z\,(2\,z+109)+2174)+19\,755)+328\,155)+1\,042\,575)+218\,295)-239\,085)+1\,195\,425)-1\,091\,475)+e^z\,\sqrt{\pi}\,(4\,z\,(z\,(8\,z\,(z\,(4\,z\,(z\,(2\,z\,(z\,(4\,z\,(z+55)+4455)+41\,580)+363\,825)+654\,885)+1\,091\,475)-311\,850)+1\,403\,325)-779\,625)+1\,091\,475)\,\mathrm{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0140.01

$$ {}_1\tilde{F}_1\left(-\frac{11}{2};6;z\right)=\frac{1}{13\,749\,310\,575\,z^4}\left(4\,e^{z/2}\left(z\left(z\left(8\,z\left(z\left(2\,z\left(z\left(4\,z\left(z\left(4\,z^2-234\,z+5109\right)-52\,563\right)+1\,056\,447\right)-2\,401\,245\right)+3\,711\,015\right)+93\,555\right)+530\,145\right)+249\,480\right)I_0\left(\frac{z}{2}\right)-\left(z\left(z\left(8\,z\left(z\left(2\,z\left(z\left(4\,z\left(z\left(4\,z^2-230\,z+4881\right)-47\,793\right)+874\,167\right)-1\,605\,807\right)+1\,091\,475\right)+530\,145\right)+3\,024\,945\right)+2\,120\,580\right)+997\,920\right)I_1\left(\frac{z}{2}\right)\right)\right) $$

For fixed z and $a=-\frac{9}{2}$

07.21.03.0141.01

$$ {}_1\tilde{F}_1\left(-\frac{9}{2};-\frac{11}{2};z\right)=-\frac{945\,e^z\,(2\,z-11)}{64\,\sqrt{\pi}} $$

07.21.03.0142.01

$$ {}_1\tilde{F}_1\left(-\frac{9}{2};-5;z\right)=\frac{1}{8}\,e^{z/2}\,z\left(2\,z\,(z\,(z\,(z+6)+24)+60)\,I_0\left(\frac{z}{2}\right)-(z\,(z\,(2\,z\,(z+7)+63)+192)+480)\,I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0143.01

$$ {}_1\tilde{F}_1\left(-\frac{9}{2};-\frac{9}{2};z\right)=-\frac{945\,e^z}{32\,\sqrt{\pi}} $$

07.21.03.0144.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -4; z\right) = \frac{1}{8} e^{z/2} z \left((z (z (2 z (2 z + 5) + 27) + 60) + 96) I_1\left(\frac{z}{2}\right) - z \left(z \left(4 z^2 + 6 z + 15\right) + 24\right) I_0\left(\frac{z}{2}\right)\right)$$

07.21.03.0145.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{7}{2}; z\right) = \frac{e^z \left(2 z \left(8 z^3 + 4 z^2 + 6 z + 15\right) + 105\right)}{16 \sqrt{\pi}} - z^{9/2} \operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0146.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{7}{2}; -z\right) = \operatorname{erf}\left(\sqrt{z}\right) z^{9/2} + \frac{e^{-z} \left(2 z \left(8 z^3 - 4 z^2 + 6 z - 15\right) + 105\right)}{16 \sqrt{\pi}}$$

07.21.03.0147.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -3; z\right) = -\frac{1}{4} e^{z/2} z \left(z (z (4 (z - 3) z - 3) - 3) I_0\left(\frac{z}{2}\right) + (z (z (9 - 4 (z - 2) z) + 12) + 12) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0148.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{5}{2}; z\right) = \frac{4 \sqrt{\pi} (9 - 2 z) \operatorname{erfi}\left(\sqrt{z}\right) z^{7/2} + e^z (4 z (z (2 (z - 4) z - 3) - 3) - 15)}{8 \sqrt{\pi}}$$

07.21.03.0149.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{5}{2}; -z\right) = \frac{e^{-z} \left(4 e^z \sqrt{\pi} (2 z + 9) \operatorname{erf}\left(\sqrt{z}\right) z^{7/2} + 4 (z (2 z (z + 4) - 3) + 3) z - 15\right)}{8 \sqrt{\pi}}$$

07.21.03.0150.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -2; z\right) = \frac{1}{12} e^{z/2} z \left((z (4 z (z (2 z - 13) + 9) + 21) + 12) I_1\left(\frac{z}{2}\right) - z (4 z (z (2 z - 15) + 21) + 3) I_0\left(\frac{z}{2}\right)\right)$$

07.21.03.0151.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{3}{2}; z\right) = \frac{\sqrt{\pi} (-4 (z - 9) z - 63) \operatorname{erfi}\left(\sqrt{z}\right) z^{5/2} + 2 e^z (z (z (z (2 z - 17) + 24) + 6) + 3)}{8 \sqrt{\pi}}$$

07.21.03.0152.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{3}{2}; -z\right) = \frac{e^{-z} \left(e^z \sqrt{\pi} (4 z (z + 9) + 63) \operatorname{erf}\left(\sqrt{z}\right) z^{5/2} + 2 (z (z (2 z + 17) + 24) - 6) z + 6\right)}{8 \sqrt{\pi}}$$

07.21.03.0153.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -1; z\right) = -\frac{1}{30} e^{z/2} z \left(4 z (z (2 (z - 12) z + 75) - 60) I_0\left(\frac{z}{2}\right) + (4 z (15 - 2 z ((z - 11) z + 27)) + 15) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0154.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{1}{2}; z\right) = \frac{\sqrt{\pi} \left(315 - 2 z \left(4 z^2 - 54 z + 189\right)\right) \operatorname{erfi}\left(\sqrt{z}\right) z^{3/2} + 2 e^z (z (z (4 (z - 13) z + 165) - 96) - 12)}{48 \sqrt{\pi}}$$

07.21.03.0155.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; -\frac{1}{2}; -z\right) = \frac{1}{48} \left(\left(2 z \left(4 z^2 + 54 z + 189\right) + 315\right) \operatorname{erf}\left(\sqrt{z}\right) z^{3/2} + \frac{2 e^{-z} (z (z (4 z (z + 13) + 165) + 96) - 12)}{\sqrt{\pi}}\right)$$

07.21.03.0156.01

$${}_1\tilde{F}_1\left(-\frac{9}{2}; 0; z\right) = \frac{1}{210} e^{z/2} z \left(\left(4 z \left(z \left(4 z^2 - 62 z + 261\right) - 291\right) + 105\right) I_1\left(\frac{z}{2}\right) - (2 z - 9) (2 z (4 (z - 12) z + 105) - 105) I_0\left(\frac{z}{2}\right)\right)$$

07.21.03.0157.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{1}{2};z\right)=\frac{1}{384\sqrt{\pi}}\left(2e^z(z(2z-5)(4(z-15)z+195)+192)+\sqrt{\pi}\sqrt{z}\,(-8z(z(2(z-18)z+189)-315)-945)\operatorname{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0158.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{1}{2};-z\right)=\frac{1}{384\sqrt{\pi}}\left(e^{-z}\left(2(z(2z+5)(4z(z+15)+195)+192)+e^z\sqrt{\pi}\sqrt{z}\,(8z(z(2z(z+18)+189)+315)+945)\operatorname{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0159.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};1;z\right)=\frac{1}{945}e^{z/2}\left((z(4z(z(-4(z-21)z-555)+1371)-4725)+945)I_0\left(\frac{z}{2}\right)+z(4z(z(4(z-20)z+477)-930)+1689)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0160.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{3}{2};z\right)=\frac{1}{3840\sqrt{\pi}\sqrt{z}}\left(2e^z\sqrt{z}\,(16z(z((z-22)z+147)-330)+2895)+\sqrt{\pi}\,(945-2z(4z(2z(z(2z-45)+315)-1575)+4725))\operatorname{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0161.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{3}{2};-z\right)=\frac{1}{3840\sqrt{\pi}\sqrt{z}}\left(e^{-z}\left(2\sqrt{z}\,(16z(z(z(z+22)+147)+330)+2895)+e^z\sqrt{\pi}\,(2z(4z(2z(z(2z+45)+315)+1575)+4725)+945)\operatorname{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0162.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};2;z\right)=-\frac{1}{10395}\left(e^{z/2}\left((2z(2z(4z(z(2z-51)+426)-5631)+14175)-10395)I_0\left(\frac{z}{2}\right)+(945-2z(2z(4z(z(2z-49)+378)-4209)+6927))I_1\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0163.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{5}{2};z\right)=\frac{1}{46080\sqrt{\pi}\,z^{3/2}}\left(2e^z\sqrt{z}\,(2z(4z(2z(z(2z-53)+447)-2751)+10005)-945)+\sqrt{\pi}\,(4z(z(4z(z(-4(z-27)z-945)+3150)-14175)+2835)+945)\operatorname{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0164.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{5}{2};-z\right)=\frac{1}{46080\sqrt{\pi}\,z^{3/2}}\left(e^{-z}\left(2\sqrt{z}\,(2z(4z(2z(z(2z+53)+447)+2751)+10005)+945)+e^z\sqrt{\pi}\,(4z(z(4z(z(4z(z+27)+945)+3150)+14175)+2835)-945)\operatorname{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0165.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};3;z\right)=-\frac{1}{135135z}\left(2e^{z/2}\left(2z(2z-9)(z(2z(2z(2z-51)+753)-3255)+1890)I_0\left(\frac{z}{2}\right)+(2z(z(-8z(z(2(z-29)z+549)-1986)-18969)+2835)+945)I_1\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0166.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{7}{2};z\right)=\frac{1}{645\,120\sqrt{\pi}\,z^{5/2}}\left(2\,e^z\sqrt{z}\,(4\,z\,(z\,(4\,z\,(z\,(4\,(z-31)\,z+1263)-4938)+25\,179)-2835)-2835)+\sqrt{\pi}\,(2\,z\,(2\,z\,(19\,845-2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z-63)+1323)-11\,025)+33\,075))+6615)+2835)\,\text{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0167.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{7}{2};-z\right)=\frac{1}{645\,120\sqrt{\pi}\,z^{5/2}}\left(e^{-z}\left(2\sqrt{z}\,(4\,z\,(z\,(4\,z\,(z\,(4\,z\,(z+31)+1263)+4938)+25\,179)+2835)-2835)+e^z\sqrt{\pi}\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z+63)+1323)+11\,025)+33\,075)+19\,845)-6615)+2835)\,\text{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0168.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};4;z\right)=-\frac{1}{2\,027\,025\,z^2}\left(2\,e^{z/2}\left(z\,(2\,z\,(4\,z\,(2\,z\,(z\,(2\,z\,(2\,z-69)+1635)-8130)+33\,075)-85\,995)-945)\,I_0\left(\frac{z}{2}\right)+(z\,(2\,z\,(19\,845-4\,z\,(2\,z\,(z\,(2\,z\,(2\,z-67)+1503)-6690)+20\,955))+12\,285)+3780)\,I_1\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0169.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{9}{2};z\right)=\frac{1}{10\,321\,920\sqrt{\pi}\,z^{7/2}}\left(2\,e^z\sqrt{z}\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z-71)+1695)-16\,077)+52\,827)-19\,845)-17\,955)-14\,175)+\sqrt{\pi}\,(14\,175-16\,z\,(z\,(2\,z\,(z\,(8\,z\,(z\,((z-36)\,z+441)-2205)+33\,075)-13\,230)-6615)-2835))\,\text{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0170.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{9}{2};-z\right)=\frac{1}{10\,321\,920\sqrt{\pi}\,z^{7/2}}\left(e^{-z}\left(2\sqrt{z}\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z+71)+1695)+16\,077)+52\,827)+19\,845)-17\,955)+14\,175)+e^z\sqrt{\pi}\,(16\,z\,(z\,(2\,z\,(z\,(8\,z\,(z\,(z\,(z+36)+441)+2205)+33\,075)+13\,230)-6615)+2835)-14\,175)\,\text{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0171.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};5;z\right)=-\frac{1}{34\,459\,425\,z^3}\left(4\,e^{z/2}\left(z\,(z\,(8\,z\,(z\,(2\,z\,(z\,(4\,(z-39)\,z+2121)-12\,315)+59\,535)-46\,305)-6615)-2835)\,I_0\left(\frac{z}{2}\right)+(z\,(z\,(46\,305-8\,z\,(z\,(2\,z\,(z\,(4\,(z-38)\,z+1971)-10\,416)+40\,395)-13\,230))+26\,460)+11\,340)\,I_1\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0172.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{11}{2};z\right)=\frac{1}{185\,794\,560\sqrt{\pi}\,z^{9/2}}\left(2\,e^z\sqrt{z}\,(8\,z\,(z\,(8\,z\,(2\,z\,(z\,(z\,(2\,(z-40)\,z+1095)-6105)+12\,288)-6615)-33\,075)-23\,625)-99\,225)+\sqrt{\pi}\,(2\,z\,(127\,575-8\,z\,(2\,z\,(z\,(2\,z\,(4\,(z-21)\,z\,(z\,(2\,z-39)+315)+59\,535)-59\,535)-19\,845)-25\,515))+99\,225)\,\text{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0173.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};\frac{11}{2};-z\right)=\frac{1}{185\,794\,560\,\sqrt{\pi}\,z^{9/2}}\Big(e^{-z}\Big(2\sqrt{z}\,(8\,z\,(z\,(8\,z\,(2\,z\,(z\,(z\,(2\,z\,(z+40)+1095)+6105)+12\,288)+6615)-33\,075)+23\,625)-99\,225)+e^{z}\sqrt{\pi}\,(2\,z\,(8\,z\,(2\,z\,(z\,(2\,z\,(4\,z\,(z+21)\,(z\,(2\,z+39)+315)+59\,535)+59\,535)-19\,845)+25\,515)-127\,575)+99\,225)\,\mathrm{erf}\big(\sqrt{z}\big)\Big)\Big)$$

07.21.03.0174.01

$${}_1\tilde{F}_1\left(-\frac{9}{2};6;z\right)=-\frac{1}{654\,729\,075\,z^4}\Big(4\,e^{z/2}\Big(z\,(z\,(8\,z\,(z\,(2\,z\,(z\,(4\,z\,(z\,(2\,z-87)+1335)-35\,457)+99\,225)-178\,605)-6615)-42\,525)-22\,680)\,I_0\Big(\frac{z}{2}\Big)+(z\,(z\,(214\,515-8\,z\,(z\,(2\,z\,(z\,(4\,z\,(z\,(2\,z-85)+1251)-30\,615)+70\,797)-59\,535)-33\,075))+170\,100)+90\,720)\,I_1\Big(\frac{z}{2}\Big)\Big)\Big)$$

For fixed z and $a=-\frac{7}{2}$

07.21.03.0175.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-\frac{11}{2};z\right)=\frac{105\,e^{z}\,(4\,(z-9)\,z+99)}{64\sqrt{\pi}}$$

07.21.03.0176.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-5;z\right)=\frac{3}{8}\,e^{z/2}\,z\Big(z\,(z\,(z+8)+40)\,I_0\Big(\frac{z}{2}\Big)-(z\,(z\,(z+9)+32)+160)\,I_1\Big(\frac{z}{2}\Big)\Big)$$

07.21.03.0177.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-\frac{9}{2};z\right)=\frac{105\,e^{z}\,(2\,z-9)}{32\sqrt{\pi}}$$

07.21.03.0178.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-4;z\right)=\frac{1}{8}\,e^{z/2}\,z\Big((z+4)\,(z\,(2\,z+3)+24)\,I_1\Big(\frac{z}{2}\Big)-z\,(z\,(2\,z+9)+24)\,I_0\Big(\frac{z}{2}\Big)\Big)$$

07.21.03.0179.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-\frac{7}{2};z\right)=\frac{105\,e^{z}}{16\sqrt{\pi}}$$

07.21.03.0180.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-3;z\right)=\frac{1}{4}\,e^{z/2}\,z\Big(z\,(2\,z\,(z+1)+3)\,I_0\Big(\frac{z}{2}\Big)-2\,(z\,(z\,(z+2)+4)+6)\,I_1\Big(\frac{z}{2}\Big)\Big)$$

07.21.03.0181.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-\frac{5}{2};z\right)=z^{7/2}\,\mathrm{erfi}\big(\sqrt{z}\big)-\frac{e^{z}\left(8\,z^3+4\,z^2+6\,z+15\right)}{8\sqrt{\pi}}$$

07.21.03.0182.01

$${}_1\tilde{F}_1\left(-\frac{7}{2};-\frac{5}{2};-z\right)=\mathrm{erf}\big(\sqrt{z}\big)\,z^{7/2}+\frac{e^{-z}\left(8\,z^3-4\,z^2+6\,z-15\right)}{8\sqrt{\pi}}$$

07.21.03.0183.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; -2; z\right) = \frac{1}{4} e^{z/2} z \left(z (2 z (2 z - 5) - 1) I_0\left(\frac{z}{2}\right) + \left(z \left(-4 z^2 + 6 z + 5\right) + 4\right) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0184.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; -\frac{3}{2}; z\right) = \frac{2 \sqrt{\pi} (2 z - 7) \operatorname{erfi}\left(\sqrt{z}\right) z^{5/2} + e^z (3 - 4 z ((z - 3) z - 1))}{4 \sqrt{\pi}}$$

07.21.03.0185.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; -\frac{3}{2}; -z\right) = \frac{1}{4}\left(2 (2 z + 7) \operatorname{erf}\left(\sqrt{z}\right) z^{5/2} + \frac{e^{-z} (4 z (z (z + 3) - 1) + 3)}{\sqrt{\pi}}\right)$$

07.21.03.0186.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; -1; z\right) = \frac{1}{6} e^{z/2} z \left(z (4 (z - 6) z + 27) I_0\left(\frac{z}{2}\right) - (z (4 (z - 5) z + 9) + 3) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0187.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; -\frac{1}{2}; z\right) = \frac{\sqrt{\pi} z^{3/2} (4 (z - 7) z + 35) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z (z (z (2 z - 13) + 12) + 2)}{8 \sqrt{\pi}}$$

07.21.03.0188.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; -\frac{1}{2}; -z\right) = \frac{e^{-z} \left(e^z \sqrt{\pi} (4 z (z + 7) + 35) \operatorname{erf}\left(\sqrt{z}\right) z^{3/2} + 2 (z (2 z + 13) + 12) z - 4\right)}{8 \sqrt{\pi}}$$

07.21.03.0189.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; 0; z\right) = \frac{1}{30} e^{z/2} z \left((4 (z - 5) z (2 z - 9) - 105) I_0\left(\frac{z}{2}\right) + (15 - 4 z (z (2 z - 17) + 29)) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0190.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; \frac{1}{2}; z\right) = \frac{\sqrt{\pi} \sqrt{z} \left(8 z^3 - 84 z^2 + 210 z - 105\right) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z (z (4 (z - 10) z + 87) - 24)}{48 \sqrt{\pi}}$$

07.21.03.0191.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; \frac{1}{2}; -z\right) = \frac{1}{48}\left(\frac{e^{-z} (2 z (4 z (z + 10) + 87) + 48)}{\sqrt{\pi}} + \sqrt{z} \left(8 z^3 + 84 z^2 + 210 z + 105\right) \operatorname{erf}\left(\sqrt{z}\right)\right)$$

07.21.03.0192.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; 1; z\right) = \frac{1}{105} e^{z/2} \left((4 z (2 z ((z - 13) z + 47) - 105) + 105) I_0\left(\frac{z}{2}\right) + 4 z (z (-2 (z - 12) z - 71) + 44) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0193.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; \frac{3}{2}; z\right) = \frac{1}{384}\left(\frac{(8 z (z (2 (z - 14) z + 105) - 105) + 105) \operatorname{erfi}\left(\sqrt{z}\right)}{\sqrt{z}} - \frac{2 e^z \left(2 z \left(4 z^2 - 54 z + 185\right) - 279\right)}{\sqrt{\pi}}\right)$$

07.21.03.0194.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; \frac{3}{2}; -z\right) = \frac{1}{384}\left(\frac{e^{-z} \left(4 z \left(4 z^2 + 54 z + 185\right) + 558\right)}{\sqrt{\pi}} + \frac{(8 z (z (2 z (z + 14) + 105) + 105) + 105) \operatorname{erf}\left(\sqrt{z}\right)}{\sqrt{z}}\right)$$

07.21.03.0195.01

$${}_1\tilde{F}_1\left(-\frac{7}{2}; 2; z\right) = \frac{1}{945} e^{z/2} \left((2 z - 9) (2 z (4 (z - 12) z + 105) - 105) I_0\left(\frac{z}{2}\right) + \left(-4 z \left(z \left(4 z^2 - 62 z + 261\right) - 291\right) - 105\right) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0196.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};\frac{5}{2};z\right)=\frac{1}{3840\sqrt{\pi}\,z^{3/2}}\left(\sqrt{\pi}\,(2z(4z(2z(z(2z-35)+175)-525)+525)+105)\,\text{erfi}\left(\sqrt{z}\right)-2e^z\sqrt{z}\,(4z(2z(2(z-17)z+159)-395)+105)\right) $$

07.21.03.0197.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};\frac{5}{2};-z\right)=\frac{1}{3840\sqrt{\pi}\,z^{3/2}}\left(e^{-z}\left(2\sqrt{z}\,(4z(2z(2z(z+17)+159)+395)+105)+e^z\sqrt{\pi}\,(2z(4z(2z(z(2z+35)+175)+525)+525)-105)\,\text{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0198.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};3;z\right)=\frac{1}{10\,395\,z}\left(2e^{z/2}\left(z(4z(z(4(z-20)z+489)-1050)+2625)\,I_0\left(\frac{z}{2}\right)-(z(4(z-3)z(4(z-16)z+223)+525)+105)\,I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0199.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};\frac{7}{2};z\right)=\frac{1}{46\,080\sqrt{\pi}\,z^{5/2}}\left(\sqrt{\pi}\,(4z(z(4z(z(4(z-21)z+525)-1050)+1575)+315)+315)\,\text{erfi}\left(\sqrt{z}\right)-2e^z\sqrt{z}\,(2z(4z(2z(z(2z-41)+243)-843)+525)+315)\right) $$

07.21.03.0200.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};\frac{7}{2};-z\right)=\frac{1}{46\,080\sqrt{\pi}\,z^{5/2}}\left(e^{-z}\left(2\sqrt{z}\,(2z(4z(2z(z(2z+41)+243)+843)+525)-315)+e^z\sqrt{\pi}\,(4z(z(4z(z(4z(z+21)+525)+1050)+1575)-315)+315)\,\text{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0201.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};4;z\right)=\frac{1}{135\,135\,z^2}\left(2e^{z/2}\left(z(2z(2z(4z(z(2z-47)+346)-3675)+5775)+105)\,I_0\left(\frac{z}{2}\right)-(z(2z(2z(4z(z(2z-45)+302)-2549)+1575)+1155)+420)\,I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0202.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};\frac{9}{2};z\right)=\frac{1}{645\,120\sqrt{\pi}\,z^{7/2}}\left(\sqrt{\pi}\left(2z\left(2z\left(2z\left(2z\left(2z\left(4z^2-98z+735\right)-3675\right)+3675\right)+2205\right)+2205\right)+1575\right)\text{erfi}\left(\sqrt{z}\right)-2e^z\sqrt{z}\,(4z(z(4z(z(4(z-24)z+689)-1536)+1575)+840)+1575)\right) $$

07.21.03.0203.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2};\frac{9}{2};-z\right)=\frac{1}{645\,120\sqrt{\pi}\,z^{7/2}}\left(e^{-z}\left(2\sqrt{z}\,(4z(z(4z(z(4z(z+24)+689)+1536)+1575)-840)+1575)+e^z\sqrt{\pi}\left(2z\left(2z\left(2z\left(2z\left(2z\left(4z^2+98z+735\right)+3675\right)+3675\right)-2205\right)+2205\right)-1575\right)\text{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0204.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2}; 5; z\right) = \frac{1}{2\,027\,025\, z^3} \left(4\, e^{z/2} \left(z\,(2\,z\,(z\,(8\,z\,(z\,(2\,(z-27)\,z+465)-1470)+11\,025)+315)+315)\, I_0\left(\frac{z}{2}\right) - 2\,(z\,(z\,(z\,(16\,z\,(z\,((z-26)\,z+207)-540)+3675)+1890)+1260)+630)\, I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0205.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2}; \frac{11}{2}; z\right) = \frac{1}{10\,321\,920\,\sqrt{\pi}\, z^{9/2}} \left(\sqrt{\pi}\, (16\,z\,(z\,(2\,z\,(z\,(8\,z\,(z\,((z-28)\,z+245)-735)+3675)+1470)+2205)+1575)+11\,025)\, \text{erfi}\left(\sqrt{z}\right) - 2\, e^z \sqrt{z}\, (2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z-55)+927)-5053)+3675)+5355)+8925)+11\,025)\right) $$

07.21.03.0206.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2}; \frac{11}{2}; -z\right) = \frac{1}{10\,321\,920\,\sqrt{\pi}\, z^{9/2}} \left(e^{-z} \left(2\sqrt{z}\, (2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z\,(2\,z+55)+927)+5053)+3675)-5355)+8925)-11\,025) + e^z \sqrt{\pi}\, (16\,z\,(z\,(2\,z\,(z\,(8\,z\,(z\,(z\,(z+28)+245)+735)+3675)-1470)+2205)-1575)+11\,025)\, \text{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0207.01

$$ {}_1\tilde{F}_1\left(-\frac{7}{2}; 6; z\right) = \frac{1}{34\,459\,425\, z^4} \left(4\, e^{z/2} \left(z\,(z\,(2\,z\,(4\,z\,(2\,z\,(z\,(2\,z\,(2\,z-61)+1203)-4410)+9555)+2205)+4095)+2520)\, I_0\left(\frac{z}{2}\right) - (z\,(z\,(2\,z\,(4\,z\,(2\,z\,(z\,(2\,z\,(2\,z-59)+1087)-3378)+3675)+9555)+17\,955)+16\,380)+10\,080)\, I_1\left(\frac{z}{2}\right)\right)\right) $$

For fixed z and $a = -\frac{5}{2}$

07.21.03.0208.01

$$ {}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{11}{2}; z\right) = -\frac{15\, e^z \left(8\,z^3 - 84\,z^2 + 378\,z - 693\right)}{64\sqrt{\pi}} $$

07.21.03.0209.01

$$ {}_1\tilde{F}_1\left(-\frac{5}{2}; -5; z\right) = -\frac{15}{8}\, e^{z/2} z^3\, I_3\left(\frac{z}{2}\right) $$

07.21.03.0210.01

$$ {}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{9}{2}; z\right) = -\frac{15\, e^z\, (4\,(z-7)\,z+63)}{32\sqrt{\pi}} $$

07.21.03.0211.01

$$ {}_1\tilde{F}_1\left(-\frac{5}{2}; -4; z\right) = \frac{3}{8}\, e^{z/2} z \left((z\,(z+4)+32)\, I_1\left(\frac{z}{2}\right) - z\,(z+8)\, I_0\left(\frac{z}{2}\right)\right) $$

07.21.03.0212.01

$$ {}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{7}{2}; z\right) = -\frac{15\, e^z\, (2\,z-7)}{16\sqrt{\pi}} $$

07.21.03.0213.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -3; z\right) = \frac{1}{4} e^{z/2} z \left(z (z+3) I_0\left(\frac{z}{2}\right) - (z (z+4) + 12) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0214.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{5}{2}; z\right) = -\frac{15 e^z}{8 \sqrt{\pi}}$$

07.21.03.0215.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -2; z\right) = \frac{1}{4} e^{z/2} z \left((z (2 z+3) + 4) I_1\left(\frac{z}{2}\right) - z (2 z+1) I_0\left(\frac{z}{2}\right)\right)$$

07.21.03.0216.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{3}{2}; z\right) = \frac{e^z \left(4 z^2 + 2 z + 3\right)}{4 \sqrt{\pi}} - z^{5/2} \operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0217.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{3}{2}; -z\right) = \operatorname{erf}\left(\sqrt{z}\right) z^{5/2} + \frac{e^{-z} \left(4 z^2 - 2 z + 3\right)}{4 \sqrt{\pi}}$$

07.21.03.0218.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -1; z\right) = -\frac{1}{2} e^{z/2} z \left(2 (z-2) z I_0\left(\frac{z}{2}\right) + (1 - 2 (z-1) z) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0219.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{1}{2}; z\right) = \frac{\sqrt{\pi} (5 - 2 z) \operatorname{erfi}\left(\sqrt{z}\right) z^{3/2} + e^z (2 (z-2) z - 1)}{2 \sqrt{\pi}}$$

07.21.03.0220.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; -\frac{1}{2}; -z\right) = \frac{1}{2} \left((2 z+5) \operatorname{erf}\left(\sqrt{z}\right) z^{3/2} + \frac{e^{-z} (2 z (z+2) - 1)}{\sqrt{\pi}}\right)$$

07.21.03.0221.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; 0; z\right) = \frac{1}{6} e^{z/2} z \left((2 (9 - 2 z) z - 15) I_0\left(\frac{z}{2}\right) + (2 z (2 z - 7) + 3) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0222.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{1}{2}; z\right) = \frac{e^z (z (2 z - 9) + 4)}{4 \sqrt{\pi}} - \frac{1}{8} \sqrt{z} (4 (z-5) z + 15) \operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0223.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{1}{2}; -z\right) = \frac{1}{8} \left(\frac{2 e^{-z} (z+4) (2 z+1)}{\sqrt{\pi}} + \sqrt{z} (4 z (z+5) + 15) \operatorname{erf}\left(\sqrt{z}\right)\right)$$

07.21.03.0224.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; 1; z\right) = \frac{1}{15} e^{z/2} \left((z (-4 (z-7) z - 45) + 15) I_0\left(\frac{z}{2}\right) + z (4 (z-6) z + 23) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0225.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{3}{2}; z\right) = \frac{1}{48} \left(\frac{2 e^z (4 (z-7) z + 33)}{\sqrt{\pi}} + \frac{\left(-8 z^3 + 60 z^2 - 90 z + 15\right) \operatorname{erfi}\left(\sqrt{z}\right)}{\sqrt{z}}\right)$$

07.21.03.0226.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{3}{2}; -z\right) = \frac{1}{48}\left(\frac{e^{-z}\,(8\,z\,(z+7)+66)}{\sqrt{\pi}} + \frac{\left(8\,z^3+60\,z^2+90\,z+15\right)\operatorname{erf}\left(\sqrt{z}\right)}{\sqrt{z}}\right)$$

07.21.03.0227.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; 2; z\right) = -\frac{1}{105}\,e^{z/2}\left((4\,(z-5)\,z\,(2\,z-9)-105)\,I_0\!\left(\frac{z}{2}\right) + (15-4\,z\,(z\,(2\,z-17)+29))\,I_1\!\left(\frac{z}{2}\right)\right)$$

07.21.03.0228.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{5}{2}; z\right) = \frac{2\,e^z\sqrt{z}\,(2\,z-5)\,(4\,(z-7)\,z+3) + \sqrt{\pi}\,(15-8\,z\,(z\,(2\,(z-10)\,z+45)-15))\operatorname{erfi}\left(\sqrt{z}\right)}{384\sqrt{\pi}\,z^{3/2}}$$

07.21.03.0229.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{5}{2}; -z\right) = \frac{e^{-z}\left(2\sqrt{z}\,(2\,z+5)\,(4\,z\,(z+7)+3) + e^z\sqrt{\pi}\,(8\,z\,(z\,(2\,z\,(z+10)+45)+15)-15)\operatorname{erf}\left(\sqrt{z}\right)\right)}{384\sqrt{\pi}\,z^{3/2}}$$

07.21.03.0230.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; 3; z\right) = -\frac{2\,e^{z/2}\left(4\,z\,(z\,(2\,(z-12)\,z+75)-60)\,I_0\left(\frac{z}{2}\right) + (4\,z\,(15-2\,z\,((z-11)\,z+27))+15)\,I_1\left(\frac{z}{2}\right)\right)}{945\,z}$$

07.21.03.0231.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{7}{2}; z\right) = \frac{1}{3840\sqrt{\pi}\,z^{5/2}}\left(2\,e^z\sqrt{z}\,(2\,z-1)\left(8\,z^3-92\,z^2+210\,z+45\right) + \sqrt{\pi}\,(2\,z\,(4\,z\,(75-2\,(z-5)\,z\,(2\,z-15))+75)+45)\operatorname{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0232.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{7}{2}; -z\right) = \frac{1}{3840\sqrt{\pi}\,z^{5/2}}\left(e^{-z}\left(2\sqrt{z}\,(2\,z+1)\left(8\,z^3+92\,z^2+210\,z-45\right) + e^z\sqrt{\pi}\,(2\,z\,(4\,z\,(2\,z\,(z+5)\,(2\,z+15)+75)-75)+45)\operatorname{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0233.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; 4; z\right) = -\frac{1}{10\,395\,z^2}\left(2\,e^{z/2}\left(z\left(4\,z\left(z\left(4\,z^2-58\,z+225\right)-225\right)-15\right)I_0\!\left(\frac{z}{2}\right) + \left(z\left(4\,z\left(z\left(-4\,z^2+54\,z-173\right)+75\right)+135\right)+60\right)I_1\!\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0234.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{9}{2}; z\right) = \frac{1}{46\,080\sqrt{\pi}\,z^{7/2}}\left(2\,e^z\sqrt{z}\,(2\,z\,(4\,z\,(2\,(z-9)\,z\,(2\,z-11)-75)-195)-225) + \sqrt{\pi}\left(4\,z\left(z\left(4\,z\left(150-(15-2\,z)^2\,z\right)+225\right)+135\right)+225\right)\operatorname{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0235.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{9}{2}; -z\right) = \frac{1}{46\,080\sqrt{\pi}\,z^{7/2}}\left(e^{-z}\left(2\sqrt{z}\,(2\,z\,(4\,z\,(2\,z\,(z+9)\,(2\,z+11)+75)-195)+225) + e^z\sqrt{\pi}\left(4\,z\left(z\left(4\,z\left(z\,(2\,z+15)^2+150\right)-225\right)+135\right)-225\right)\operatorname{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0236.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; 5; z\right) = -\frac{1}{135\,135\,z^3}\left(4\,e^{z/2}\left(z\,(z\,(4\,(z-5)\,z\,(4\,(z-12)\,z+75)-75)-45)\,I_0\left(\frac{z}{2}\right)+\right.\right.$$
$$\left.\left.(z\,(z\,(4\,z\,(z\,(-4\,(z-16)\,z-253)+150)+375)+300)+180)\,I_1\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0237.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{11}{2}; z\right) = \frac{1}{645\,120\,\sqrt{\pi}\,z^{9/2}}\left(2\,e^z\,\sqrt{z}\,(4\,z\,(z\,(4\,z\,(z\,(4\,(z-17)\,z+283)-150)-525)-525)-1575)+\right.$$
$$\left.\sqrt{\pi}\,\left(2\,z\left(2\,z\left(2\,z\left(2\,z\left(525-2\,z\left(4\,z^2-70\,z+315\right)\right)+525\right)+945\right)+1575\right)+1575\right)\text{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0238.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; \frac{11}{2}; -z\right) = \frac{1}{645\,120\,\sqrt{\pi}\,z^{9/2}}\left(e^{-z}\left(2\,\sqrt{z}\,(4\,z\,(z\,(4\,z\,(z\,(4\,z\,(z+17)+283)+150)-525)+525)-1575)+\right.\right.$$
$$\left.\left.e^z\,\sqrt{\pi}\,\left(2\,z\left(2\,z\left(2\,z\left(2\,z\left(2\,z\left(4\,z^2+70\,z+315\right)+525\right)-525\right)+945\right)-1575\right)+1575\right)\text{erf}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0239.01

$${}_1\tilde{F}_1\left(-\frac{5}{2}; 6; z\right) = -\frac{1}{2\,027\,025\,z^4}\left(4\,e^{z/2}\left(z\,(z\,(2\,z\,(2\,z\,(4\,z\,(z\,(2\,z-39)+210)-1155)-225)-495)-360)\,I_0\left(\frac{z}{2}\right)+\right.\right.$$
$$\left.\left.(z\,(z\,(2\,z\,(2\,z\,(525-4\,z\,(z\,(2\,z-37)+174))+825)+1845)+1980)+1440)\,I_1\left(\frac{z}{2}\right)\right)\right)$$

For fixed z and $a = -\frac{3}{2}$

07.21.03.0240.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -\frac{11}{2}; z\right) = \frac{3\,e^z\,(8\,z\,(z\,(2\,(z-10)\,z+105)-315)+3465)}{64\,\sqrt{\pi}}$$

07.21.03.0241.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -5; z\right) = \frac{3}{8}\,e^{z/2}\,z\left(z\,((z-8)\,z+40)\,I_0\left(\frac{z}{2}\right)+(z\,((z-9)\,z+32)-160)\,I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0242.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -\frac{9}{2}; z\right) = \frac{3\,e^z\left(8\,z^3-60\,z^2+210\,z-315\right)}{32\,\sqrt{\pi}}$$

07.21.03.0243.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -4; z\right) = \frac{3}{8}\,e^{z/2}\,z\left((z-8)\,z\,I_0\left(\frac{z}{2}\right)+((z-4)\,z+32)\,I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0244.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -\frac{7}{2}; z\right) = \frac{3\,e^z\,(4\,(z-5)\,z+35)}{16\,\sqrt{\pi}}$$

07.21.03.0245.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -3; z\right) = \frac{3}{4}\,e^{z/2}\,z^2\,I_2\left(\frac{z}{2}\right)$$

07.21.03.0246.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -\frac{5}{2}; z\right) = \frac{3\,e^z\,(2\,z-5)}{8\,\sqrt{\pi}}$$

07.21.03.0247.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -2; z\right) = \frac{1}{4} e^{z/2} z \left((z+4) I_1\left(\frac{z}{2}\right) - z I_0\left(\frac{z}{2}\right)\right)$$

07.21.03.0248.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -\frac{3}{2}; z\right) = \frac{3 e^z}{4 \sqrt{\pi}}$$

07.21.03.0249.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -1; z\right) = \frac{1}{2} e^{z/2} z \left(z I_0\left(\frac{z}{2}\right) - (z+1) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0250.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -\frac{1}{2}; z\right) = z^{3/2} \operatorname{erfi}\left(\sqrt{z}\right) - \frac{e^z (2 z + 1)}{2 \sqrt{\pi}}$$

07.21.03.0251.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; -\frac{1}{2}; -z\right) = \operatorname{erf}\left(\sqrt{z}\right) z^{3/2} + \frac{e^{-z} (2 z - 1)}{2 \sqrt{\pi}}$$

07.21.03.0252.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; 0; z\right) = \frac{1}{2} e^{z/2} z \left((2 z - 3) I_0\left(\frac{z}{2}\right) + (1 - 2 z) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0253.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; \frac{1}{2}; z\right) = \frac{1}{2} \sqrt{z} (2 z - 3) \operatorname{erfi}\left(\sqrt{z}\right) - \frac{e^z (z - 1)}{\sqrt{\pi}}$$

07.21.03.0254.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; \frac{1}{2}; -z\right) = \frac{e^{-z} (z + 1)}{\sqrt{\pi}} + \frac{1}{2} \sqrt{z} (2 z + 3) \operatorname{erf}\left(\sqrt{z}\right)$$

07.21.03.0255.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; 1; z\right) = \frac{1}{3} e^{z/2} \left((2 (z - 3) z + 3) I_0\left(\frac{z}{2}\right) - 2 (z - 2) z I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0256.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; \frac{3}{2}; z\right) = \frac{1}{8} \left(\frac{(4 (z - 3) z + 3) \operatorname{erfi}\left(\sqrt{z}\right)}{\sqrt{z}} - \frac{2 e^z (2 z - 5)}{\sqrt{\pi}}\right)$$

07.21.03.0257.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; \frac{3}{2}; -z\right) = \frac{1}{8} \left(\frac{2 e^{-z} (2 z + 5)}{\sqrt{\pi}} + \frac{(4 z (z + 3) + 3) \operatorname{erf}\left(\sqrt{z}\right)}{\sqrt{z}}\right)$$

07.21.03.0258.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; 2; z\right) = \frac{1}{15} e^{z/2} \left((2 z (2 z - 9) + 15) I_0\left(\frac{z}{2}\right) + (2 (7 - 2 z) z - 3) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0259.01

$${}_1\tilde{F}_1\left(-\frac{3}{2}; \frac{5}{2}; z\right) = \frac{\sqrt{\pi} (2 z (2 z (2 z - 9) + 9) + 3) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z \sqrt{z} (4 (z - 4) z + 3)}{48 \sqrt{\pi} z^{3/2}}$$

07.21.03.0260.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};\frac{5}{2};-z\right)=\frac{\frac{2e^{-z}\sqrt{z}\,(4z(z+4)+3)}{\sqrt{\pi}}+(2z(2z(2z+9)+9)-3)\operatorname{erf}\left(\sqrt{z}\right)}{48z^{3/2}} $$

07.21.03.0261.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};3;z\right)=\frac{2e^{z/2}\left(z(4(z-6)z+27)I_0\left(\frac{z}{2}\right)-(z(4(z-5)z+9)+3)I_1\left(\frac{z}{2}\right)\right)}{105z} $$

07.21.03.0262.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};\frac{7}{2};z\right)=\frac{\sqrt{\pi}\,(8z(z(2(z-6)z+9)+3)+9)\operatorname{erfi}\left(\sqrt{z}\right)-2e^z\sqrt{z}\left(2z\left(4z^2-22z+9\right)+9\right)}{384\sqrt{\pi}\,z^{5/2}} $$

07.21.03.0263.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};\frac{7}{2};-z\right)=\frac{e^{-z}\left(2\sqrt{z}\left(2z\left(4z^2+22z+9\right)-9\right)+e^z\sqrt{\pi}\,(8z(z(2z(z+6)+9)-3)+9)\operatorname{erf}\left(\sqrt{z}\right)\right)}{384\sqrt{\pi}\,z^{5/2}} $$

07.21.03.0264.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};4;z\right)=\frac{2e^{z/2}\left(z(4z(z(2z-15)+21)+3)I_0\left(\frac{z}{2}\right)-(z(4z(z(2z-13)+9)+21)+12)I_1\left(\frac{z}{2}\right)\right)}{945z^2} $$

07.21.03.0265.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};\frac{9}{2};z\right)= \frac{1}{3840\sqrt{\pi}\,z^{7/2}}\left(\sqrt{\pi}\,(2z(4z(2z(z(2z-15)+15)+15)+45)+45)\operatorname{erfi}\left(\sqrt{z}\right)-2e^z\sqrt{z}\,(4z(2z(2(z-7)z+9)+15)+45)\right) $$

07.21.03.0266.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};\frac{9}{2};-z\right)=\frac{1}{3840\sqrt{\pi}\,z^{7/2}} \left(e^{-z}\left(2\sqrt{z}\,(2z+3)\left(8z^3+44z^2-30z+15\right)+e^z\sqrt{\pi}\,(2z(4z(2z(z(2z+15)+15)-15)+45)-45)\operatorname{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0267.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};5;z\right)=\frac{4e^{z/2}\left(z(4z(2z((z-9)z+15)+3)+9)I_0\left(\frac{z}{2}\right)-4((z-2)z(z(2(z-6)z-9)-6)+9)I_1\left(\frac{z}{2}\right)\right)}{10\,395z^3} $$

07.21.03.0268.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};\frac{11}{2};z\right)=\frac{1}{46\,080\sqrt{\pi}\,z^{9/2}}\left(\sqrt{\pi}\,(4z(z(4z(z(4(z-9)z+45)+30)+135)+135)+315)\operatorname{erfi}\left(\sqrt{z}\right)- 2e^z\sqrt{z}\,(2z(4z(2(z-1)z(2z-15)+33)+165)+315)\right) $$

07.21.03.0269.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};\frac{11}{2};-z\right)=\frac{1}{46\,080\sqrt{\pi}\,z^{9/2}}\left(e^{-z}\left(2\sqrt{z}\,(2z(4z(2z(z+1)(2z+15)-33)+165)-315)+ e^z\sqrt{\pi}\,(4z(z(4z(z(4z(z+9)+45)-30)+135)-135)+315)\operatorname{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0270.01

$$ {}_1\tilde{F}_1\left(-\frac{3}{2};6;z\right)=\frac{1}{135135\,z^4}\left(4\,e^{z/2}\left(z\left(z\left(4\,z\left(z\left(4\,z^2-42\,z+81\right)+15\right)+81\right)+72\right)I_0\left(\frac{z}{2}\right)-\left(z\left(z\left(4\,z\left(z\left(4\,z^2-38\,z+45\right)+45\right)+249\right)+324\right)+288\right)I_1\left(\frac{z}{2}\right)\right)\right) $$

For fixed z and $a=-\frac{1}{2}$

07.21.03.0271.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-\frac{11}{2};z\right)=\frac{e^z\,(10395-2\,z\,(4\,z\,(2\,z\,(z\,(2\,z-15)+75)-525)+4725))}{64\sqrt{\pi}} $$

07.21.03.0272.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-5;z\right)=-\frac{1}{8}\,e^{z/2}\,z\left(2\,z\,(z\,((z-6)\,z+24)-60)\,I_0\left(\frac{z}{2}\right)+(z\,(z\,(2\,(z-7)\,z+63)-192)+480)\,I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0273.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-\frac{9}{2};z\right)=\frac{e^z\,(8\,z\,(z\,(-2\,(z-6)\,z-45)+105)-945)}{32\sqrt{\pi}} $$

07.21.03.0274.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-4;z\right)=-\frac{1}{8}\,e^{z/2}\,z\left(z\,(z\,(2\,z-9)+24)\,I_0\left(\frac{z}{2}\right)+(z-4)\,(z\,(2\,z-3)+24)\,I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0275.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-\frac{7}{2};z\right)=\frac{e^z\,(105-2\,z\,(2\,z\,(2\,z-9)+45))}{16\sqrt{\pi}} $$

07.21.03.0276.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-3;z\right)=-\frac{1}{4}\,e^{z/2}\,z\left((z-3)\,z\,I_0\left(\frac{z}{2}\right)+((z-4)\,z+12)\,I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0277.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-\frac{5}{2};z\right)=\frac{e^z\,(-4\,(z-3)\,z-15)}{8\sqrt{\pi}} $$

07.21.03.0278.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-2;z\right)=-\frac{1}{4}\,e^{z/2}\,z\left(z\,I_0\left(\frac{z}{2}\right)+(z-4)\,I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0279.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-\frac{3}{2};z\right)=\frac{e^z\,(3-2\,z)}{4\sqrt{\pi}} $$

07.21.03.0280.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-1;z\right)=-\frac{1}{2}\,e^{z/2}\,z\,I_1\left(\frac{z}{2}\right) $$

07.21.03.0281.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};-\frac{1}{2};z\right)=-\frac{e^z}{2\sqrt{\pi}} $$

07.21.03.0282.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};0;z\right)=-\frac{1}{2}\,e^{z/2}\,z\left(I_0\left(\frac{z}{2}\right)-I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0028.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{1}{2};z\right)=\frac{e^z}{\sqrt{\pi}}-\sqrt{z}\,\operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0283.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{1}{2};-z\right)=\sqrt{z}\,\operatorname{erf}\left(\sqrt{z}\right)+\frac{e^{-z}}{\sqrt{\pi}}$$

07.21.03.0029.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};1;z\right)=e^{z/2}\left(z\,I_1\left(\frac{z}{2}\right)-(z-1)\,I_0\left(\frac{z}{2}\right)\right)$$

07.21.03.0030.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{3}{2};z\right)=\frac{e^z}{\sqrt{\pi}}-\frac{(2z-1)\operatorname{erfi}\left(\sqrt{z}\right)}{2\sqrt{z}}$$

07.21.03.0284.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{3}{2};-z\right)=\frac{(2z+1)\operatorname{erf}\left(\sqrt{z}\right)}{2\sqrt{z}}+\frac{e^{-z}}{\sqrt{\pi}}$$

07.21.03.0031.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};2;z\right)=-\frac{1}{3}e^{z/2}\left((2z-3)\,I_0\left(\frac{z}{2}\right)+(1-2z)\,I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0032.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{5}{2};z\right)=\frac{2e^z\sqrt{z}\,(2z-1)+\sqrt{\pi}\,\left(-4z^2+4z+1\right)\operatorname{erfi}\left(\sqrt{z}\right)}{8\sqrt{\pi}\,z^{3/2}}$$

07.21.03.0285.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{5}{2};-z\right)=\frac{e^{-z}(2z+1)}{4\sqrt{\pi}\,z}+\frac{(4z(z+1)-1)\operatorname{erf}\left(\sqrt{z}\right)}{8z^{3/2}}$$

07.21.03.0033.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};3;z\right)=-\frac{2}{15z}e^{z/2}\left(2(z-2)\,z\,I_0\left(\frac{z}{2}\right)+\left(-2z^2+2z+1\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0034.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{7}{2};z\right)=\frac{2e^z\sqrt{z}\,\left(4z^2-4z-3\right)+\sqrt{\pi}\,\left(-8z^3+12z^2+6z+3\right)\operatorname{erfi}\left(\sqrt{z}\right)}{48\sqrt{\pi}\,z^{5/2}}$$

07.21.03.0286.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};\frac{7}{2};-z\right)=\frac{\frac{2e^{-z}\sqrt{z}\,(4z(z+1)-3)}{\sqrt{\pi}}+\left(2z\left(4z^2+6z-3\right)+3\right)\operatorname{erf}\left(\sqrt{z}\right)}{48z^{5/2}}$$

07.21.03.0035.01

$${}_1\tilde{F}_1\left(-\frac{1}{2};4;z\right)=-\frac{2}{105z^2}e^{z/2}\left(z\left(4z^2-10z-1\right)I_0\left(\frac{z}{2}\right)+\left(-4z^3+6z^2+5z+4\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0287.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};\frac{9}{2};z\right)=\frac{2\,e^z\sqrt{z}\,(2z-5)(4z(z+1)+3)+\sqrt{\pi}\,(8z(z(3-2(z-2)z)+3)+15)\operatorname{erfi}\left(\sqrt{z}\right)}{384\sqrt{\pi}\,z^{7/2}} $$

07.21.03.0288.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};\frac{9}{2};-z\right)=\frac{e^{-z}\left(2\sqrt{z}\,(2z+5)(4(z-1)z+3)+e^z\sqrt{\pi}\,(8z(z(2z(z+2)-3)+3)-15)\operatorname{erf}\left(\sqrt{z}\right)\right)}{384\sqrt{\pi}\,z^{7/2}} $$

07.21.03.0289.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};5;z\right)=-\frac{4\,e^{z/2}\left(z(z(4(z-3)z-3)-3)\,I_0\left(\frac{z}{2}\right)+(z(z(9-4(z-2)z)+12)+12)\,I_1\left(\frac{z}{2}\right)\right)}{945\,z^3} $$

07.21.03.0290.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};\frac{11}{2};z\right)=\frac{1}{3840\sqrt{\pi}\,z^{9/2}}\left(2\,e^z\sqrt{z}\,(16z((z-3)z(z+1)-5)-105)+\sqrt{\pi}\,(2z(4z(2z((5-2z)z+5)+15)+75)+105)\operatorname{erfi}\left(\sqrt{z}\right)\right) $$

07.21.03.0291.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};\frac{11}{2};-z\right)=\frac{1}{3840\sqrt{\pi}\,z^{9/2}}\left(e^{-z}\left(2\sqrt{z}\,(16z((z-1)z(z+3)+5)-105)+e^z\sqrt{\pi}\,(2z(4z(2z(z(2z+5)-5)+15)-75)+105)\operatorname{erf}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0292.01

$$ {}_1\tilde{F}_1\left(-\frac{1}{2};6;z\right)=-\frac{1}{10\,395\,z^4}\left(4\,e^{z/2}\left(z(z(4z(z(2z-7)-3)-21)-24)\,I_0\left(\frac{z}{2}\right)+(z(z(4z((5-2z)z+7)+51)+84)+96)\,I_1\left(\frac{z}{2}\right)\right)\right) $$

For fixed z and $a = \frac{1}{2}$

07.21.03.0293.01

$$ {}_1\tilde{F}_1\left(\frac{1}{2};-\frac{11}{2};z\right)=\frac{e^z\,(4z(z(4z(z(4(z-3)z+45)-150)+1575)-2835)+10\,395)}{64\sqrt{\pi}} $$

07.21.03.0294.01

$$ {}_1\tilde{F}_1\left(\frac{1}{2};-5;z\right)=\frac{1}{8}\,e^{z/2}\,z\left(z(z(z(4(z-2)z+27)-72)+120)\,I_0\left(\frac{z}{2}\right)+\left(z\left((z-3)z\left(4z^2+41\right)+288\right)-480\right)I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0295.01

$$ {}_1\tilde{F}_1\left(\frac{1}{2};-\frac{9}{2};z\right)=\frac{e^z\left(2z\left(4z(2z-5)\left(2z^2+15\right)+525\right)-945\right)}{32\sqrt{\pi}} $$

07.21.03.0296.01

$$ {}_1\tilde{F}_1\left(\frac{1}{2};-4;z\right)=\frac{1}{8}\,e^{z/2}\,z\left(z\left(z\left(4z^2-6z+15\right)-24\right)I_0\left(\frac{z}{2}\right)+(z(z(2z(2z-5)+27)-60)+96)\,I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0297.01

$$ {}_1\tilde{F}_1\left(\frac{1}{2};-\frac{7}{2};z\right)=\frac{e^z\,(8z(z(2(z-2)z+9)-15)+105)}{16\sqrt{\pi}} $$

07.21.03.0298.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; -3; z\right) = \frac{1}{4} e^{z/2} z \left(z (2 (z-1) z + 3) I_0\left(\frac{z}{2}\right) + 2 (z ((z-2) z + 4) - 6) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0299.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; -\frac{5}{2}; z\right) = \frac{e^z \left(2 z \left(4 z^2 - 6 z + 9\right) - 15\right)}{8 \sqrt{\pi}}$$

07.21.03.0300.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; -2; z\right) = \frac{1}{4} e^{z/2} z \left(z (2 z - 1) I_0\left(\frac{z}{2}\right) + (z (2 z - 3) + 4) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0301.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; -\frac{3}{2}; z\right) = \frac{e^z (4 (z-1) z + 3)}{4 \sqrt{\pi}}$$

07.21.03.0302.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; -1; z\right) = \frac{1}{2} e^{z/2} z \left(z I_0\left(\frac{z}{2}\right) + (z-1) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0036.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; -\frac{1}{2}; z\right) == \frac{e^z (2 z - 1)}{2 \sqrt{\pi}}$$

07.21.03.0303.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; 0; z\right) = \frac{1}{2} e^{z/2} z \left(I_0\left(\frac{z}{2}\right) + I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0304.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{1}{2}; z\right) = \frac{e^z}{\sqrt{\pi}}$$

07.21.03.0037.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; 1; z\right) == e^{z/2} I_0\left(\frac{z}{2}\right)$$

07.21.03.0039.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{3}{2}; z\right) == \frac{\operatorname{erfi}\left(\sqrt{z}\right)}{\sqrt{z}}$$

07.21.03.0305.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{3}{2}; -z\right) = \frac{\operatorname{erf}\left(\sqrt{z}\right)}{\sqrt{z}}$$

07.21.03.0040.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; 2; z\right) == e^{z/2} \left(I_0\left(\frac{z}{2}\right) - I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0041.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{5}{2}; z\right) == \frac{\sqrt{\pi} (2 z + 1) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z \sqrt{z}}{2 \sqrt{\pi} z^{3/2}}$$

07.21.03.0306.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{5}{2}; -z\right) = \frac{(2z-1)\,\mathrm{erf}\left(\sqrt{z}\right)}{2\,z^{3/2}} + \frac{e^{-z}}{\sqrt{\pi}\,z}$$

07.21.03.0042.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; 3; z\right) = \frac{2}{3z}\,e^{z/2}\left(z\,I_0\left(\frac{z}{2}\right) - (z+1)\,I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0043.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{7}{2}; z\right) = \frac{\sqrt{\pi}\left(4z^2+4z+3\right)\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^z\sqrt{z}\,(2z+3)}{8\sqrt{\pi}\,z^{5/2}}$$

07.21.03.0307.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{7}{2}; -z\right) = \frac{e^{-z}\,(2z-3)}{4\sqrt{\pi}\,z^2} + \frac{(4(z-1)z+3)\,\mathrm{erf}\left(\sqrt{z}\right)}{8\,z^{5/2}}$$

07.21.03.0044.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; 4; z\right) = \frac{2}{15\,z^2}\,e^{z/2}\left(z\,(2z+1)\,I_0\left(\frac{z}{2}\right) - \left(2z^2+3z+4\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0308.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{9}{2}; z\right) = \frac{\sqrt{\pi}\left(2z\left(4z^2+6z+9\right)+15\right)\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^z\sqrt{z}\,(4z(z+2)+15)}{48\sqrt{\pi}\,z^{7/2}}$$

07.21.03.0309.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{9}{2}; -z\right) = \frac{\frac{2\,e^{-z}\sqrt{z}\,(4(z-2)z+15)}{\sqrt{\pi}} + \left(2z\left(4z^2-6z+9\right)-15\right)\mathrm{erf}\left(\sqrt{z}\right)}{48\,z^{7/2}}$$

07.21.03.0310.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; 5; z\right) = \frac{4\,e^{z/2}\left(z\,(2z(z+1)+3)\,I_0\left(\frac{z}{2}\right) - 2\,(z\,(z\,(z+2)+4)+6)\,I_1\left(\frac{z}{2}\right)\right)}{105\,z^3}$$

07.21.03.0311.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{11}{2}; z\right) = \frac{\sqrt{\pi}\,(8z\,(z\,(2z\,(z+2)+9)+15)+105)\,\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^z\sqrt{z}\,(2z\,(2z\,(2z+5)+25)+105)}{384\sqrt{\pi}\,z^{9/2}}$$

07.21.03.0312.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; \frac{11}{2}; -z\right) = \frac{e^{-z}\left(2\sqrt{z}\,(2z\,(2z\,(2z-5)+25)-105) + e^z\sqrt{\pi}\,(8z\,(z\,(2\,(z-2)\,z+9)-15)+105)\,\mathrm{erf}\left(\sqrt{z}\right)\right)}{384\sqrt{\pi}\,z^{9/2}}$$

07.21.03.0313.01

$${}_1\tilde{F}_1\left(\frac{1}{2}; 6; z\right) = \frac{4\,e^{z/2}\left(z\left(z\left(4z^2+6z+15\right)+24\right)I_0\left(\frac{z}{2}\right) - (z\,(z\,(2z\,(2z+5)+27)+60)+96)\,I_1\left(\frac{z}{2}\right)\right)}{945\,z^4}$$

For fixed z and $a = 1$

07.21.03.0314.01

$${}_1\tilde{F}_1\left(1; -\frac{11}{2}; z\right) = e^z\,\mathrm{erf}\left(\sqrt{z}\right)z^{13/2} + \frac{2z\left(2z\left(2z\left(8z^3-4z^2+6z-15\right)+105\right)-945\right)+10\,395}{64\sqrt{\pi}}$$

07.21.03.0315.01

$${}_1\tilde{F}_1\left(1; -\frac{11}{2}; -z\right) = \frac{2 z \left(2 z \left(2 z \left(8 z^3 + 4 z^2 + 6 z + 15\right) + 105\right) + 945\right) + 10\,395}{64 \sqrt{\pi}} - e^{-z} z^{13/2} \operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0316.01

$${}_1\tilde{F}_1(1; -5; z) = e^z z^6$$

07.21.03.0317.01

$${}_1\tilde{F}_1\left(1; -\frac{9}{2}; z\right) = e^z \operatorname{erf}\left(\sqrt{z}\right) z^{11/2} + \frac{2 z \left(2 z \left(8 z^3 - 4 z^2 + 6 z - 15\right) + 105\right) - 945}{32 \sqrt{\pi}}$$

07.21.03.0318.01

$${}_1\tilde{F}_1\left(1; -\frac{9}{2}; -z\right) = e^{-z} \operatorname{erfi}\left(\sqrt{z}\right) z^{11/2} + \frac{-2 z \left(2 z \left(8 z^3 + 4 z^2 + 6 z + 15\right) + 105\right) - 945}{32 \sqrt{\pi}}$$

07.21.03.0319.01

$${}_1\tilde{F}_1(1; -4; z) = e^z z^5$$

07.21.03.0320.01

$${}_1\tilde{F}_1\left(1; -\frac{7}{2}; z\right) = e^z \operatorname{erf}\left(\sqrt{z}\right) z^{9/2} + \frac{2 z \left(8 z^3 - 4 z^2 + 6 z - 15\right) + 105}{16 \sqrt{\pi}}$$

07.21.03.0321.01

$${}_1\tilde{F}_1\left(1; -\frac{7}{2}; -z\right) = \frac{2 z \left(8 z^3 + 4 z^2 + 6 z + 15\right) + 105}{16 \sqrt{\pi}} - e^{-z} z^{9/2} \operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0322.01

$${}_1\tilde{F}_1(1; -3; z) = e^z z^4$$

07.21.03.0323.01

$${}_1\tilde{F}_1\left(1; -\frac{5}{2}; z\right) = e^z \operatorname{erf}\left(\sqrt{z}\right) z^{7/2} + \frac{8 z^3 - 4 z^2 + 6 z - 15}{8 \sqrt{\pi}}$$

07.21.03.0324.01

$${}_1\tilde{F}_1\left(1; -\frac{5}{2}; -z\right) = e^{-z} z^{7/2} \operatorname{erfi}\left(\sqrt{z}\right) - \frac{8 z^3 + 4 z^2 + 6 z + 15}{8 \sqrt{\pi}}$$

07.21.03.0325.01

$${}_1\tilde{F}_1(1; -2; z) = e^z z^3$$

07.21.03.0326.01

$${}_1\tilde{F}_1\left(1; -\frac{3}{2}; z\right) = e^z \operatorname{erf}\left(\sqrt{z}\right) z^{5/2} + \frac{4 z^2 - 2 z + 3}{4 \sqrt{\pi}}$$

07.21.03.0327.01

$${}_1\tilde{F}_1\left(1; -\frac{3}{2}; -z\right) = \frac{4 z^2 + 2 z + 3}{4 \sqrt{\pi}} - e^{-z} z^{5/2} \operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0328.01

$${}_1\tilde{F}_1(1; -1; z) = e^z z^2$$

07.21.03.0045.01

$${}_1\tilde{F}_1\left(1; -\frac{1}{2}; z\right) = e^z \operatorname{erf}\left(\sqrt{z}\right) z^{3/2} + \frac{2z-1}{2\sqrt{\pi}}$$

07.21.03.0329.01

$${}_1\tilde{F}_1\left(1; -\frac{1}{2}; -z\right) = e^{-z} z^{3/2} \operatorname{erfi}\left(\sqrt{z}\right) - \frac{2z+1}{2\sqrt{\pi}}$$

07.21.03.0330.01

$${}_1\tilde{F}_1(1; 0; z) = e^z z$$

07.21.03.0046.01

$${}_1\tilde{F}_1\left(1; \frac{1}{2}; z\right) = e^z \sqrt{z} \operatorname{erf}\left(\sqrt{z}\right) + \frac{1}{\sqrt{\pi}}$$

07.21.03.0331.01

$${}_1\tilde{F}_1\left(1; \frac{1}{2}; -z\right) = \frac{1}{\sqrt{\pi}} - e^{-z} \sqrt{z} \operatorname{erfi}\left(\sqrt{z}\right)$$

07.21.03.0332.01

$${}_1\tilde{F}_1(1; 1; z) = e^z$$

07.21.03.0047.01

$${}_1\tilde{F}_1\left(1; \frac{3}{2}; z\right) = \frac{e^z \operatorname{erf}\left(\sqrt{z}\right)}{\sqrt{z}}$$

07.21.03.0333.01

$${}_1\tilde{F}_1\left(1; \frac{3}{2}; -z\right) = \frac{e^{-z} \operatorname{erfi}\left(\sqrt{z}\right)}{\sqrt{z}}$$

07.21.03.0048.01

$${}_1\tilde{F}_1(1; 2; z) = \frac{e^z - 1}{z}$$

07.21.03.0049.01

$${}_1\tilde{F}_1\left(1; \frac{5}{2}; z\right) = \frac{e^z \operatorname{erf}\left(\sqrt{z}\right)}{z^{3/2}} - \frac{2}{\sqrt{\pi}\, z}$$

07.21.03.0334.01

$${}_1\tilde{F}_1\left(1; \frac{5}{2}; -z\right) = \frac{2}{\sqrt{\pi}\, z} - \frac{e^{-z} \operatorname{erfi}\left(\sqrt{z}\right)}{z^{3/2}}$$

07.21.03.0050.01

$${}_1\tilde{F}_1(1; 3; z) = \frac{e^z - 1 - z}{z^2}$$

07.21.03.0051.01

$${}_1\tilde{F}_1\left(1; \frac{7}{2}; z\right) = \frac{e^z \operatorname{erf}\left(\sqrt{z}\right)}{z^{5/2}} - \frac{2(2z+3)}{3\sqrt{\pi}\, z^2}$$

07.21.03.0335.01

$${}_1\tilde{F}_1\left(1; \frac{7}{2}; -z\right) = \frac{2(2z-3)}{3\sqrt{\pi}\, z^2} + \frac{e^{-z}\operatorname{erfi}\left(\sqrt{z}\right)}{z^{5/2}}$$

07.21.03.0052.01

$${}_1\tilde{F}_1(1; 4; z) = \frac{2e^z - 2 - 2z - z^2}{2z^3}$$

07.21.03.0336.01

$${}_1\tilde{F}_1\left(1; \frac{9}{2}; z\right) = \frac{e^z\operatorname{erf}\left(\sqrt{z}\right)}{z^{7/2}} - \frac{2(2z(2z+5)+15)}{15\sqrt{\pi}\, z^3}$$

07.21.03.0337.01

$${}_1\tilde{F}_1\left(1; \frac{9}{2}; -z\right) = \frac{4z(2z-5)+30}{15\sqrt{\pi}\, z^3} - \frac{e^{-z}\operatorname{erfi}\left(\sqrt{z}\right)}{z^{7/2}}$$

07.21.03.0338.01

$${}_1\tilde{F}_1(1; 5; z) = -\frac{z(z(z+3)+6) - 6e^z + 6}{6z^4}$$

07.21.03.0339.01

$${}_1\tilde{F}_1\left(1; \frac{11}{2}; z\right) = \frac{e^z\operatorname{erf}\left(\sqrt{z}\right)}{z^{9/2}} - \frac{2(2z(2z(2z+7)+35)+105)}{105\sqrt{\pi}\, z^4}$$

07.21.03.0340.01

$${}_1\tilde{F}_1\left(1; \frac{11}{2}; -z\right) = \frac{2(2z(2z(2z-7)+35)-105)}{105\sqrt{\pi}\, z^4} + \frac{e^{-z}\operatorname{erfi}\left(\sqrt{z}\right)}{z^{9/2}}$$

07.21.03.0341.01

$${}_1\tilde{F}_1(1; 6; z) = -\frac{z(z(z(z+4)+12)+24) - 24e^z + 24}{24z^5}$$

For fixed z and $a = \frac{3}{2}$

07.21.03.0342.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -\frac{11}{2}; z\right) = \frac{e^z(2z(2z(2z(2z(2z(2z(2z+7)-21)+105)-525)+2205)-6615)+10\,395)}{64\sqrt{\pi}}$$

07.21.03.0343.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -5; z\right) =$$
$$\frac{1}{8}e^{z/2}z\left(4z(z(z(z(2z(z+4)-5)+12)-24)+30)\,I_0\left(\frac{z}{2}\right) + (z(z(4z(2z(z(z+3)-5)+23)-207)+384)-480)\,I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0344.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -\frac{9}{2}; z\right) = \frac{e^z(4z(z(4z(z(4z(z+3)-15)+30)-225)+315)-945)}{32\sqrt{\pi}}$$

07.21.03.0345.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -4; z\right) = \frac{1}{8}e^{z/2}z\left(z(z(4z(z(2z+7)-3)+21)-24)\,I_0\left(\frac{z}{2}\right) + (z(z(4(z-1)z(2z+7)+51)-84)+96)\,I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0346.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -\frac{7}{2}; z\right) = \frac{e^z (2 z (4 z (2 z (z (2 z + 5) - 5) + 15) - 75) + 105)}{16 \sqrt{\pi}}$$

07.21.03.0347.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -3; z\right) = \frac{1}{4} e^{z/2} z \left(z (z (4 z (z + 3) - 3) + 3) I_0\left(\frac{z}{2}\right) + (z (z (4 z (z + 2) - 9) + 12) - 12) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0348.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -\frac{5}{2}; z\right) = \frac{e^z (8 z (z (2 z (z + 2) - 3) + 3) - 15)}{8 \sqrt{\pi}}$$

07.21.03.0349.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -2; z\right) = \frac{1}{4} e^{z/2} z \left(z (2 z (2 z + 5) - 1) I_0\left(\frac{z}{2}\right) + \left(z \left(4 z^2 + 6 z - 5\right) + 4\right) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0350.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -\frac{3}{2}; z\right) = \frac{e^z \left(2 z \left(4 z^2 + 6 z - 3\right) + 3\right)}{4 \sqrt{\pi}}$$

07.21.03.0351.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -1; z\right) = \frac{1}{2} e^{z/2} z \left(2 z (z + 2) I_0\left(\frac{z}{2}\right) + (2 z (z + 1) - 1) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0053.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; -\frac{1}{2}; z\right) = \frac{e^z \left(4 z^2 + 4 z - 1\right)}{2 \sqrt{\pi}}$$

07.21.03.0352.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; 0; z\right) = \frac{1}{2} e^{z/2} z \left((2 z + 3) I_0\left(\frac{z}{2}\right) + (2 z + 1) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0054.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{1}{2}; z\right) = \frac{e^z (1 + 2 z)}{\sqrt{\pi}}$$

07.21.03.0055.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; 1; z\right) = e^{z/2} \left((z + 1) I_0\left(\frac{z}{2}\right) + z I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0353.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{3}{2}; z\right) = \frac{2 e^z}{\sqrt{\pi}}$$

07.21.03.0056.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; 2; z\right) = e^{z/2} \left(I_0\left(\frac{z}{2}\right) + I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0057.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{5}{2}; z\right) = \frac{2 e^z}{\sqrt{\pi}\, z} - \frac{\operatorname{erfi}\left(\sqrt{z}\right)}{z^{3/2}}$$

07.21.03.0354.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{5}{2}; -z\right) = \frac{\operatorname{erf}\left(\sqrt{z}\right)}{z^{3/2}} - \frac{2\, e^{-z}}{\sqrt{\pi}\, z}$$

07.21.03.0058.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; 3; z\right) = \frac{2}{z}\, e^{z/2}\, I_1\left(\frac{z}{2}\right)$$

07.21.03.0059.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{7}{2}; z\right) = \frac{6\, e^z \sqrt{z} - \sqrt{\pi}\, (2\, z + 3) \operatorname{erfi}\left(\sqrt{z}\right)}{2\sqrt{\pi}\, z^{5/2}}$$

07.21.03.0355.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{7}{2}; -z\right) = \frac{(2\, z - 3) \operatorname{erf}\left(\sqrt{z}\right)}{2\, z^{5/2}} + \frac{3\, e^{-z}}{\sqrt{\pi}\, z^2}$$

07.21.03.0060.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; 4; z\right) = \frac{2}{3\, z^2}\, e^{z/2} \left((z + 4)\, I_1\left(\frac{z}{2}\right) - z\, I_0\left(\frac{z}{2}\right)\right)$$

07.21.03.0356.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{9}{2}; z\right) = \frac{e^z\, (2\, z + 15)}{4\sqrt{\pi}\, z^3} - \frac{(4\, z\, (z + 3) + 15) \operatorname{erfi}\left(\sqrt{z}\right)}{8\, z^{7/2}}$$

07.21.03.0357.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{9}{2}; -z\right) = \frac{e^{-z}\, (2\, z - 15)}{4\sqrt{\pi}\, z^3} + \frac{(4\, (z - 3)\, z + 15) \operatorname{erf}\left(\sqrt{z}\right)}{8\, z^{7/2}}$$

07.21.03.0358.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; 5; z\right) = \frac{4\, e^{z/2} \left((z\, (z + 4) + 12)\, I_1\left(\frac{z}{2}\right) - z\, (z + 3)\, I_0\left(\frac{z}{2}\right)\right)}{15\, z^3}$$

07.21.03.0359.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{11}{2}; z\right) = \frac{e^z\, (4\, z\, (z + 5) + 105)}{24\sqrt{\pi}\, z^4} - \frac{(2\, z\, (2\, z\, (2\, z + 9) + 45) + 105) \operatorname{erfi}\left(\sqrt{z}\right)}{48\, z^{9/2}}$$

07.21.03.0360.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; \frac{11}{2}; -z\right) = \frac{\frac{2\, e^{-z} \sqrt{z}\, (4\, (z-5)\, z+105)}{\sqrt{\pi}} + (2\, z\, (2\, z\, (2\, z - 9) + 45) - 105) \operatorname{erf}\left(\sqrt{z}\right)}{48\, z^{9/2}}$$

07.21.03.0361.01

$${}_1\tilde{F}_1\left(\frac{3}{2}; 6; z\right) = \frac{4\, e^{z/2} \left((z + 4)\, (z\, (2\, z + 3) + 24)\, I_1\left(\frac{z}{2}\right) - z\, (z\, (2\, z + 9) + 24)\, I_0\left(\frac{z}{2}\right)\right)}{105\, z^4}$$

For fixed z and $a = 2$

07.21.03.0362.01

$$ {}_1\tilde{F}_1\left(2;-\frac{11}{2};z\right)= \frac{1}{64\sqrt{\pi}}\left(32\,e^z\sqrt{\pi}\,(2z+15)\,\text{erf}\left(\sqrt{z}\right)z^{13/2}+4\,(z\,(4\,z\,(z\,(4\,z\,(z\,(z+7)-3)+15)-30)+315)-945)\,z+10\,395\right) $$

07.21.03.0363.01

$$ {}_1\tilde{F}_1\left(2;-\frac{11}{2};-z\right)= \frac{1}{64\sqrt{\pi}}\left(e^{-z}\left(32\sqrt{\pi}\,(2z-15)\,\text{erfi}\left(\sqrt{z}\right)z^{13/2}+e^z\,(4\,z\,(z\,(4\,z\,(z\,(15-4\,z\,((z-7)\,z-3))+30)+315)+945)+10\,395)\right)\right) $$

07.21.03.0364.01

$$ {}_1\tilde{F}_1(2;-5;z)=e^z\,z^6\,(z+7) $$

07.21.03.0365.01

$$ {}_1\tilde{F}_1\left(2;-\frac{9}{2};z\right)=\frac{16\,e^z\sqrt{\pi}\,(2z+13)\,\text{erf}\left(\sqrt{z}\right)z^{11/2}+4\,(z\,(4\,z\,(z\,(2\,z\,(z+6)-5)+6)-45)+105)\,z-945}{32\sqrt{\pi}} $$

07.21.03.0366.01

$$ {}_1\tilde{F}_1\left(2;-\frac{9}{2};-z\right)=\frac{e^{-z}\left(16\sqrt{\pi}\,(13-2z)\,\text{erfi}\left(\sqrt{z}\right)z^{11/2}+e^z\,(4\,z\,(z\,(4\,z\,(z\,(2\,(z-6)\,z-5)-6)-45)-105)-945)\right)}{32\sqrt{\pi}} $$

07.21.03.0367.01

$$ {}_1\tilde{F}_1(2;-4;z)=e^z\,z^5\,(z+6) $$

07.21.03.0368.01

$$ {}_1\tilde{F}_1\left(2;-\frac{7}{2};z\right)=\frac{8\,e^z\sqrt{\pi}\,(2z+11)\,\text{erf}\left(\sqrt{z}\right)z^{9/2}+4\,(z\,(4\,z\,(z\,(z+5)-2)+9)-15)\,z+105}{16\sqrt{\pi}} $$

07.21.03.0369.01

$$ {}_1\tilde{F}_1\left(2;-\frac{7}{2};-z\right)=\frac{e^{-z}\left(8\sqrt{\pi}\,(2z-11)\,\text{erfi}\left(\sqrt{z}\right)z^{9/2}+e^z\,(4\,z\,(z\,(9-4\,z\,((z-5)\,z-2))+15)+105)\right)}{16\sqrt{\pi}} $$

07.21.03.0370.01

$$ {}_1\tilde{F}_1(2;-3;z)=e^z\,z^4\,(z+5) $$

07.21.03.0371.01

$$ {}_1\tilde{F}_1\left(2;-\frac{5}{2};z\right)=\frac{4\,e^z\sqrt{\pi}\,(2z+9)\,\text{erf}\left(\sqrt{z}\right)z^{7/2}+4\,(z\,(2\,z\,(z+4)-3)+3)\,z-15}{8\sqrt{\pi}} $$

07.21.03.0372.01

$$ {}_1\tilde{F}_1\left(2;-\frac{5}{2};-z\right)=\frac{e^{-z}\left(4\sqrt{\pi}\,(9-2z)\,\text{erfi}\left(\sqrt{z}\right)z^{7/2}+e^z\,(4\,z\,(z\,(2\,(z-4)\,z-3)-3)-15)\right)}{8\sqrt{\pi}} $$

07.21.03.0373.01

$$ {}_1\tilde{F}_1(2;-2;z)=e^z\,z^3\,(z+4) $$

07.21.03.0374.01

$${}_1\tilde{F}_1\left(2; -\frac{3}{2}; z\right) = \frac{2\, e^z \sqrt{\pi}\, (2z+7)\, \text{erf}\left(\sqrt{z}\right) z^{5/2} + 4\,(z\,(z+3)-1)\, z + 3}{4\sqrt{\pi}}$$

07.21.03.0375.01

$${}_1\tilde{F}_1\left(2; -\frac{3}{2}; -z\right) = \frac{2\, e^{-z} \sqrt{\pi}\, (2z-7)\, \text{erfi}\left(\sqrt{z}\right) z^{5/2} - 4\,((z-3)\, z - 1)\, z + 3}{4\sqrt{\pi}}$$

07.21.03.0376.01

$${}_1\tilde{F}_1(2; -1; z) = e^z z^2 (z+3)$$

07.21.03.0061.01

$${}_1\tilde{F}_1\left(2; -\frac{1}{2}; z\right) = \frac{e^z \sqrt{\pi}\, (2z+5)\, \text{erf}\left(\sqrt{z}\right) z^{3/2} + 2z^2 + 4z - 1}{2\sqrt{\pi}}$$

07.21.03.0377.01

$${}_1\tilde{F}_1\left(2; -\frac{1}{2}; -z\right) = \frac{1}{2}\left(e^{-z} (5-2z)\, \text{erfi}\left(\sqrt{z}\right) z^{3/2} + \frac{2\,(z-2)\, z - 1}{\sqrt{\pi}}\right)$$

07.21.03.0378.01

$${}_1\tilde{F}_1(2; 0; z) = e^z z\, (z+2)$$

07.21.03.0062.01

$${}_1\tilde{F}_1\left(2; \frac{1}{2}; z\right) = \frac{2\,(z+1) + e^z \sqrt{\pi} \sqrt{z}\, (2z+3)\, \text{erf}\left(\sqrt{z}\right)}{2\sqrt{\pi}}$$

07.21.03.0379.01

$${}_1\tilde{F}_1\left(2; \frac{1}{2}; -z\right) = \frac{1-z}{\sqrt{\pi}} + \frac{1}{2} e^{-z} \sqrt{z}\, (2z-3)\, \text{erfi}\left(\sqrt{z}\right)$$

07.21.03.0063.01

$${}_1\tilde{F}_1(2; 1; z) = e^z (1+z)$$

07.21.03.0064.01

$${}_1\tilde{F}_1\left(2; \frac{3}{2}; z\right) = \frac{e^z (2z+1)\, \text{erf}\left(\sqrt{z}\right)}{2\sqrt{z}} + \frac{1}{\sqrt{\pi}}$$

07.21.03.0380.01

$${}_1\tilde{F}_1\left(2; \frac{3}{2}; -z\right) = \frac{e^{-z} (1-2z)\, \text{erfi}\left(\sqrt{z}\right)}{2\sqrt{z}} + \frac{1}{\sqrt{\pi}}$$

07.21.03.0381.01

$${}_1\tilde{F}_1(2; 2; z) = e^z$$

07.21.03.0065.01

$${}_1\tilde{F}_1\left(2; \frac{5}{2}; z\right) = \frac{e^z \sqrt{\pi}\, (2z-1)\, \text{erf}\left(\sqrt{z}\right) + 2\sqrt{z}}{2\sqrt{\pi}\, z^{3/2}}$$

07.21.03.0382.01

$${}_1\tilde{F}_1\left(2;\ \frac{5}{2};\ -z\right) = \frac{e^{-z}\,(2\,z+1)\,\text{erfi}\left(\sqrt{z}\right)}{2\,z^{3/2}} - \frac{1}{\sqrt{\pi}\,z}$$

07.21.03.0066.01

$${}_1\tilde{F}_1(2;\ 3;\ z) = \frac{e^z\,(z-1)+1}{z^2}$$

07.21.03.0067.01

$${}_1\tilde{F}_1\left(2;\ \frac{7}{2};\ z\right) = \frac{e^z\,\sqrt{\pi}\,(2\,z-3)\,\text{erf}\left(\sqrt{z}\right)+6\,\sqrt{z}}{2\,\sqrt{\pi}\,z^{5/2}}$$

07.21.03.0383.01

$${}_1\tilde{F}_1\left(2;\ \frac{7}{2};\ -z\right) = \frac{3}{\sqrt{\pi}\,z^2} - \frac{e^{-z}\,(2\,z+3)\,\text{erfi}\left(\sqrt{z}\right)}{2\,z^{5/2}}$$

07.21.03.0068.01

$${}_1\tilde{F}_1(2;\ 4;\ z) = \frac{e^z\,(z-2)+z+2}{z^3}$$

07.21.03.0384.01

$${}_1\tilde{F}_1\left(2;\ \frac{9}{2};\ z\right) = \frac{4\,z+15}{3\,\sqrt{\pi}\,z^3} + \frac{e^z\,(2\,z-5)\,\text{erf}\left(\sqrt{z}\right)}{2\,z^{7/2}}$$

07.21.03.0385.01

$${}_1\tilde{F}_1\left(2;\ \frac{9}{2};\ -z\right) = \frac{4\,z-15}{3\,\sqrt{\pi}\,z^3} + \frac{e^{-z}\,(2\,z+5)\,\text{erfi}\left(\sqrt{z}\right)}{2\,z^{7/2}}$$

07.21.03.0386.01

$${}_1\tilde{F}_1(2;\ 5;\ z) = \frac{2\,e^z\,(z-3)+z\,(z+4)+6}{2\,z^4}$$

07.21.03.0387.01

$${}_1\tilde{F}_1\left(2;\ \frac{11}{2};\ z\right) = \frac{8\,z\,(z+5)+105}{15\,\sqrt{\pi}\,z^4} + \frac{e^z\,(2\,z-7)\,\text{erf}\left(\sqrt{z}\right)}{2\,z^{9/2}}$$

07.21.03.0388.01

$${}_1\tilde{F}_1\left(2;\ \frac{11}{2};\ -z\right) = \frac{8\,(z-5)\,z+105}{15\,\sqrt{\pi}\,z^4} - \frac{e^{-z}\,(2\,z+7)\,\text{erfi}\left(\sqrt{z}\right)}{2\,z^{9/2}}$$

07.21.03.0389.01

$${}_1\tilde{F}_1(2;\ 6;\ z) = \frac{6\,e^z\,(z-4)+z\,(z\,(z+6)+18)+24}{6\,z^5}$$

For fixed z and $a = \frac{5}{2}$

07.21.03.0390.01

$${}_1\tilde{F}_1\left(\frac{5}{2};\ -\frac{11}{2};\ z\right) = \frac{e^z\,(16\,z\,(z\,(2\,z\,(z\,(8\,z\,(z\,(z\,(z+12)+21)-21)+315)-630)+2205)-2835)+31\,185)}{192\,\sqrt{\pi}}$$

07.21.03.0391.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -5; z\right) = \frac{1}{24} e^{z/2} z \left(z (z (z (4 z (z (4 z (z + 12) + 105) - 30) + 225) - 360) + 360) I_0\left(\frac{z}{2}\right) + (z (z (z (4 z (z (4 z (z + 11) + 63) - 75) + 525) - 945) + 1440) - 1440) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0392.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -\frac{9}{2}; z\right) = \frac{e^z \left(2 z \left(2 z \left(2 z \left(2 z \left(2 z \left(4 z^2 + 42 z + 63\right) - 105\right) + 315\right) - 945\right) + 2205\right) - 2835\right)}{96 \sqrt{\pi}}$$

07.21.03.0393.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -4; z\right) = \frac{1}{24} e^{z/2} z \left(z \left(z \left(4 z \left(z \left(4 z^2 + 42 z + 81\right) - 15\right) + 81\right) - 72\right) I_0\left(\frac{z}{2}\right) + \left(z \left(z \left(4 z \left(z \left(4 z^2 + 38 z + 45\right) - 45\right) + 249\right) - 324\right) + 288\right) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0394.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -\frac{7}{2}; z\right) = \frac{e^z (4 z (z (4 z (z (4 z (z + 9) + 45) - 30) + 135) - 135) + 315)}{48 \sqrt{\pi}}$$

07.21.03.0395.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -3; z\right) = \frac{1}{12} e^{z/2} z \left(z (4 z (2 z (z (z + 9) + 15) - 3) + 9) I_0\left(\frac{z}{2}\right) + 4 (z (z + 2) (z (2 z (z + 6) - 9) + 6) - 9) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0396.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -\frac{5}{2}; z\right) = \frac{e^z (2 z (4 z (2 z (z (2 z + 15) + 15) - 15) + 45) - 45)}{24 \sqrt{\pi}}$$

07.21.03.0397.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -2; z\right) = \frac{1}{12} e^{z/2} z \left(z (4 z (z (2 z + 15) + 21) - 3) I_0\left(\frac{z}{2}\right) + (z (4 z (z (2 z + 13) + 9) - 21) + 12) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0398.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -\frac{3}{2}; z\right) = \frac{e^z (8 z (z (2 z (z + 6) + 9) - 3) + 9)}{12 \sqrt{\pi}}$$

07.21.03.0399.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -1; z\right) = \frac{1}{6} e^{z/2} z \left(z (2 z + 3) (2 z + 9) I_0\left(\frac{z}{2}\right) + (z (4 z (z + 5) + 9) - 3) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0069.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; -\frac{1}{2}; z\right) = \frac{e^z \left(8 z^3 + 36 z^2 + 18 z - 3\right)}{6 \sqrt{\pi}}$$

07.21.03.0400.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; 0; z\right) = \frac{1}{6} e^{z/2} z \left((2 z (2 z + 9) + 15) I_0\left(\frac{z}{2}\right) + (2 z (2 z + 7) + 3) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0070.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{1}{2}; z\right) = \frac{1}{\sqrt{\pi}} e^z \left(\frac{4 z^2}{3} + 4 z + 1\right)$$

07.21.03.0071.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; 1; z\right) == \frac{1}{3} e^{z/2} \left(\left(2 z^2 + 6 z + 3\right) I_0\left(\frac{z}{2}\right) + 2 z (z+2) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0072.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{3}{2}; z\right) == \frac{2 e^z (2 z + 3)}{3 \sqrt{\pi}}$$

07.21.03.0073.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; 2; z\right) == \frac{1}{3} e^{z/2} \left((2 z + 3) I_0\left(\frac{z}{2}\right) + (2 z + 1) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0401.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{5}{2}; z\right) == \frac{4 e^z}{3 \sqrt{\pi}}$$

07.21.03.0074.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; 3; z\right) == \frac{2}{3 z} e^{z/2} \left(z I_0\left(\frac{z}{2}\right) + (z-1) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0075.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{7}{2}; z\right) == \frac{2 e^z \sqrt{z} (2 z - 3) + 3 \sqrt{\pi} \operatorname{erfi}\left(\sqrt{z}\right)}{3 \sqrt{\pi} z^{5/2}}$$

07.21.03.0402.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{7}{2}; -z\right) = \frac{\operatorname{erf}\left(\sqrt{z}\right)}{z^{5/2}} - \frac{2 e^{-z} (2 z + 3)}{3 \sqrt{\pi} z^2}$$

07.21.03.0076.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; 4; z\right) == \frac{2}{3 z^2} e^{z/2} \left(z I_0\left(\frac{z}{2}\right) + (z-4) I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0403.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{9}{2}; z\right) = \frac{e^z (4 z - 15)}{3 \sqrt{\pi} z^3} + \frac{(2 z + 5) \operatorname{erfi}\left(\sqrt{z}\right)}{2 z^{7/2}}$$

07.21.03.0404.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{9}{2}; -z\right) = \frac{e^{-z} (4 z + 15)}{3 \sqrt{\pi} z^3} + \frac{(2 z - 5) \operatorname{erf}\left(\sqrt{z}\right)}{2 z^{7/2}}$$

07.21.03.0405.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; 5; z\right) = \frac{4 e^{z/2} I_2\left(\frac{z}{2}\right)}{3 z^2}$$

07.21.03.0406.01

$${}_1\tilde{F}_1\left(\frac{5}{2}; \frac{11}{2}; z\right) = \frac{5 e^z (2 z - 21)}{12 \sqrt{\pi} z^4} + \frac{(4 z (z + 5) + 35) \operatorname{erfi}\left(\sqrt{z}\right)}{8 z^{9/2}}$$

07.21.03.0407.01

$$ {}_1\tilde{F}_1\left(\frac{5}{2};\ \frac{11}{2};\ -z\right) = \frac{(4\,(z-5)\,z+35)\,\mathrm{erf}\left(\sqrt{z}\right)}{8\,z^{9/2}} - \frac{5\,e^{-z}\,(2\,z+21)}{12\,\sqrt{\pi}\,z^4} $$

07.21.03.0408.01

$$ {}_1\tilde{F}_1\left(\frac{5}{2};\ 6;\ z\right) = \frac{4\,e^{z/2}\left(z\,(z+8)\,I_0\left(\frac{z}{2}\right) - (z\,(z+4)+32)\,I_1\left(\frac{z}{2}\right)\right)}{15\,z^4} $$

For fixed *z* and *a* = 3

07.21.03.0409.01

$$ {}_1\tilde{F}_1\left(3;\ -\frac{11}{2};\ z\right) = \frac{1}{64\,\sqrt{\pi}}\left(8\,e^z\,\sqrt{\pi}\,(4\,z\,(z+17)+255)\,\mathrm{erf}\left(\sqrt{z}\right)z^{13/2} + 2\,(4\,z\,(2\,z\,(z\,(z\,(z\,(z\,(2\,z+33)+112)-42)+45)-75)+315)-2835)\,z+10\,395\right) $$

07.21.03.0410.01

$$ {}_1\tilde{F}_1\left(3;\ -\frac{11}{2};\ -z\right) = \frac{1}{64\,\sqrt{\pi}}\left(e^{-z}\left(e^z\,(2\,z\,(4\,z\,(2\,z\,(z\,(z\,(z\,(2\,z-33)+112)+42)+45)+75)+315)+2835)+10\,395) - 8\,\sqrt{\pi}\,z^{13/2}\,(4\,(z-17)\,z+255)\,\mathrm{erfi}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0411.01

$$ {}_1\tilde{F}_1(3;\ -5;\ z) = \frac{1}{2}\,e^z\,z^6\,(z\,(z+16)+56) $$

07.21.03.0412.01

$$ {}_1\tilde{F}_1\left(3;\ -\frac{9}{2};\ z\right) = \frac{1}{32\,\sqrt{\pi}}\left(4\,e^z\,\sqrt{\pi}\,(4\,z\,(z+15)+195)\,\mathrm{erf}\left(\sqrt{z}\right)z^{11/2} + 2\,(4\,z\,(z\,(z\,(z\,(z+4)\,(2\,z+21)-30)+30)-45)+315)\,z-945\right) $$

07.21.03.0413.01

$$ {}_1\tilde{F}_1\left(3;\ -\frac{9}{2};\ -z\right) = \frac{1}{32\,\sqrt{\pi}}\left(e^{-z}\left(4\,\sqrt{\pi}\,z^{11/2}\,(4\,(z-15)\,z+195)\,\mathrm{erfi}\left(\sqrt{z}\right) - e^z\,(2\,z\,(4\,z\,(z\,(z\,((z-4)\,z\,(2\,z-21)+30)+30)+45)+315)+945)\right)\right) $$

07.21.03.0414.01

$$ {}_1\tilde{F}_1(3;\ -4;\ z) = \frac{1}{2}\,e^z\,z^5\,(z\,(z+14)+42) $$

07.21.03.0415.01

$$ {}_1\tilde{F}_1\left(3;\ -\frac{7}{2};\ z\right) = \frac{2\,e^z\,\sqrt{\pi}\,(4\,z\,(z+13)+143)\,\mathrm{erf}\left(\sqrt{z}\right)z^{9/2} + 2\,(2\,z\,(z\,(z\,(z\,(2\,z+25)+60)-20)+18)-45)\,z+105}{16\,\sqrt{\pi}} $$

07.21.03.0416.01

$${}_1\tilde{F}_1\left(3; -\frac{7}{2}; -z\right) = \frac{1}{16\sqrt{\pi}}\left(e^{-z}\left(e^{z}\left(2z\left(2z\left(z\left(z\left(z\left(2z-25\right)+60\right)+20\right)+18\right)+45\right)+105\right)-2\sqrt{\pi}\,z^{9/2}\left(4\left(z-13\right)z+143\right)\operatorname{erfi}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0417.01

$${}_1\tilde{F}_1(3; -3; z) = \frac{1}{2}e^{z}z^{4}\left(z\left(z+12\right)+30\right)$$

07.21.03.0418.01

$${}_1\tilde{F}_1\left(3; -\frac{5}{2}; z\right) = \frac{e^{z}\sqrt{\pi}\left(4z\left(z+11\right)+99\right)\operatorname{erf}\left(\sqrt{z}\right)z^{7/2}+2\left(z+3\right)\left(z\left(z\left(2z+15\right)-5\right)+3\right)z-15}{8\sqrt{\pi}}$$

07.21.03.0419.01

$${}_1\tilde{F}_1\left(3; -\frac{5}{2}; -z\right) = \frac{e^{-z}\left(\sqrt{\pi}\,z^{7/2}\left(4\left(z-11\right)z+99\right)\operatorname{erfi}\left(\sqrt{z}\right)-e^{z}\left(2z\left(z\left(\left(z-8\right)z\left(2z-5\right)+12\right)+9\right)+15\right)\right)}{8\sqrt{\pi}}$$

07.21.03.0420.01

$${}_1\tilde{F}_1(3; -2; z) = \frac{1}{2}e^{z}z^{3}\left(z\left(z+10\right)+20\right)$$

07.21.03.0421.01

$${}_1\tilde{F}_1\left(3; -\frac{3}{2}; z\right) = \frac{e^{z}\sqrt{\pi}\left(4z\left(z+9\right)+63\right)\operatorname{erf}\left(\sqrt{z}\right)z^{5/2}+2\left(z\left(z\left(2z+17\right)+24\right)-6\right)z+6}{8\sqrt{\pi}}$$

07.21.03.0422.01

$${}_1\tilde{F}_1\left(3; -\frac{3}{2}; -z\right) = \frac{1}{8}\left(e^{-z}\left(-4\left(z-9\right)z-63\right)\operatorname{erfi}\left(\sqrt{z}\right)z^{5/2}+\frac{2z\left(z\left(z\left(2z-17\right)+24\right)+6\right)+6}{\sqrt{\pi}}\right)$$

07.21.03.0423.01

$${}_1\tilde{F}_1(3; -1; z) = \frac{1}{2}e^{z}z^{2}\left(z+2\right)\left(z+6\right)$$

07.21.03.0077.01

$${}_1\tilde{F}_1\left(3; -\frac{1}{2}; z\right) = \frac{e^{z}\sqrt{\pi}\left(4z^{2}+28z+35\right)\operatorname{erf}\left(\sqrt{z}\right)z^{3/2}+4z^{3}+26z^{2}+24z-4}{8\sqrt{\pi}}$$

07.21.03.0424.01

$${}_1\tilde{F}_1\left(3; -\frac{1}{2}; -z\right) = \frac{1}{8}\left(e^{-z}\left(4\left(z-7\right)z+35\right)\operatorname{erfi}\left(\sqrt{z}\right)z^{3/2}+\frac{-2z\left(z\left(2z-13\right)+12\right)-4}{\sqrt{\pi}}\right)$$

07.21.03.0425.01

$${}_1\tilde{F}_1(3; 0; z) = \frac{1}{2}e^{z}z\left(z\left(z+6\right)+6\right)$$

07.21.03.0078.01

$${}_1\tilde{F}_1\left(3; \frac{1}{2}; z\right) = \frac{4z^{2}+18z+e^{z}\sqrt{\pi}\left(4z^{2}+20z+15\right)\operatorname{erf}\left(\sqrt{z}\right)\sqrt{z}+8}{8\sqrt{\pi}}$$

07.21.03.0426.01

$${}_1\tilde{F}_1\left(3; \frac{1}{2}; -z\right) = \frac{1}{8}\left(\frac{2 z (2 z - 9) + 8}{\sqrt{\pi}} + e^{-z} \sqrt{z}\, (-4 (z - 5) z - 15) \operatorname{erfi}\left(\sqrt{z}\right)\right)$$

07.21.03.0079.01

$${}_1\tilde{F}_1(3; 1; z) = \frac{1}{2} e^z \left(z^2 + 4 z + 2\right)$$

07.21.03.0080.01

$${}_1\tilde{F}_1\left(3; \frac{3}{2}; z\right) = \frac{2 \sqrt{z}\, (2 z + 5) + e^z \sqrt{\pi}\, \left(4 z^2 + 12 z + 3\right) \operatorname{erf}\left(\sqrt{z}\right)}{8 \sqrt{\pi}\, \sqrt{z}}$$

07.21.03.0427.01

$${}_1\tilde{F}_1\left(3; \frac{3}{2}; -z\right) = \frac{1}{8}\left(\frac{10 - 4 z}{\sqrt{\pi}} + \frac{e^{-z} (4 (z - 3) z + 3) \operatorname{erfi}\left(\sqrt{z}\right)}{\sqrt{z}}\right)$$

07.21.03.0081.01

$${}_1\tilde{F}_1(3; 2; z) = \frac{1}{2} e^z (2 + z)$$

07.21.03.0082.01

$${}_1\tilde{F}_1\left(3; \frac{5}{2}; z\right) = \frac{2 \sqrt{z}\, (2 z + 1) + e^z \sqrt{\pi}\, \left(4 z^2 + 4 z - 1\right) \operatorname{erf}\left(\sqrt{z}\right)}{8 \sqrt{\pi}\, z^{3/2}}$$

07.21.03.0428.01

$${}_1\tilde{F}_1\left(3; \frac{5}{2}; -z\right) = \frac{2 z - 1}{4 \sqrt{\pi}\, z} + \frac{e^{-z} (1 - 4 (z - 1) z) \operatorname{erfi}\left(\sqrt{z}\right)}{8 z^{3/2}}$$

07.21.03.0429.01

$${}_1\tilde{F}_1(3; 3; z) = \frac{e^z}{2}$$

07.21.03.0083.01

$${}_1\tilde{F}_1\left(3; \frac{7}{2}; z\right) = \frac{2 \sqrt{z}\, (2 z - 3) + e^z \sqrt{\pi}\, \left(4 z^2 - 4 z + 3\right) \operatorname{erf}\left(\sqrt{z}\right)}{8 \sqrt{\pi}\, z^{5/2}}$$

07.21.03.0430.01

$${}_1\tilde{F}_1\left(3; \frac{7}{2}; -z\right) = \frac{e^{-z} (4 z (z + 1) + 3) \operatorname{erfi}\left(\sqrt{z}\right)}{8 z^{5/2}} - \frac{2 z + 3}{4 \sqrt{\pi}\, z^2}$$

07.21.03.0084.01

$${}_1\tilde{F}_1(3; 4; z) = \frac{e^z \left(z^2 - 2 z + 2\right) - 2}{2 z^3}$$

07.21.03.0431.01

$${}_1\tilde{F}_1\left(3; \frac{9}{2}; z\right) = \frac{2 z - 15}{4 \sqrt{\pi}\, z^3} + \frac{e^z (4 (z - 3) z + 15) \operatorname{erf}\left(\sqrt{z}\right)}{8 z^{7/2}}$$

07.21.03.0432.01

$${}_1\tilde{F}_1\left(3; \frac{9}{2}; -z\right) = \frac{2z+15}{4\sqrt{\pi}\, z^3} - \frac{e^{-z}\,(4z(z+3)+15)\operatorname{erfi}\left(\sqrt{z}\right)}{8\, z^{7/2}}$$

07.21.03.0433.01

$${}_1\tilde{F}_1(3; 5; z) = \frac{e^z\,((z-4)z+6) - 2(z+3)}{2\, z^4}$$

07.21.03.0434.01

$${}_1\tilde{F}_1\left(3; \frac{11}{2}; z\right) = \frac{e^z\,(4(z-5)z+35)\operatorname{erf}\left(\sqrt{z}\right)}{8\, z^{9/2}} - \frac{5(2z+21)}{12\sqrt{\pi}\, z^4}$$

07.21.03.0435.01

$${}_1\tilde{F}_1\left(3; \frac{11}{2}; -z\right) = \frac{5(2z-21)}{12\sqrt{\pi}\, z^4} + \frac{e^{-z}\,(4z(z+5)+35)\operatorname{erfi}\left(\sqrt{z}\right)}{8\, z^{9/2}}$$

07.21.03.0436.01

$${}_1\tilde{F}_1(3; 6; z) = \frac{-z(z+6) + e^z\,((z-6)z+12) - 12}{2\, z^5}$$

For fixed z and $a = \frac{7}{2}$

07.21.03.0437.01

$${}_1\tilde{F}_1\left(\frac{7}{2}; -\frac{11}{2}; z\right) = \frac{1}{960\sqrt{\pi}}\left(e^z\,(2z(8z(2z(z(2z(4z(z(z(2z+45)+270)+315)-945)+2835)-4725)+14175)-127575)+155925)\right)$$

07.21.03.0438.01

$${}_1\tilde{F}_1\left(\frac{7}{2}; -5; z\right) = \frac{1}{120}\, e^{z/2}\, z\left(2z(z(z(16z(z+7)(z(z+15)+30)-525)+810)-1080)+900)\, I_0\left(\frac{z}{2}\right) + (z(z(2z(z(8z(z(2z(z+21)+229)+210)-1575)+2235)-6705)+8640)-7200)\, I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0439.01

$${}_1\tilde{F}_1\left(\frac{7}{2}; -\frac{9}{2}; z\right) = \frac{e^z\,(16z(z(2z(z(8z(z(z(z+20)+105)+105)-525)+630)-1575)+1575)-14175)}{480\sqrt{\pi}}$$

07.21.03.0440.01

$${}_1\tilde{F}_1\left(\frac{7}{2}; -4; z\right) = \frac{1}{120}\, e^{z/2}\, z\left(z(z(2z(2z(4z(z(2z+39)+210)+1155)-225)+495)-360)\, I_0\left(\frac{z}{2}\right) + (z(z(2z(2z(4z(z(2z+37)+174)+525)-825)+1845)-1980)+1440)\, I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0441.01

$${}_1\tilde{F}_1\left(\frac{7}{2}; -\frac{7}{2}; z\right) = \frac{e^z\left(2z\left(2z\left(2z\left(2z\left(2z\left(4z^2+70z+315\right)+525\right)-525\right)+945\right)-1575\right)+1575\right)}{240\sqrt{\pi}}$$

07.21.03.0442.01

$${}_1\tilde{F}_1\left(\frac{7}{2};-3;z\right)=\frac{1}{60}e^{z/2}z\left(z(z(4z(z+5)(4z(z+12)+75)-75)+45)I_0\left(\frac{z}{2}\right)+(z(z(4z(z(4z(z+16)+253)+150)-375)+300)-180)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0443.01

$${}_1\tilde{F}_1\left(\frac{7}{2};-\frac{5}{2};z\right)=\frac{e^z\left(4z\left(z\left(4z\left(z(2z+15)^2+150\right)-225\right)+135\right)-225\right)}{120\sqrt{\pi}}$$

07.21.03.0444.01

$${}_1\tilde{F}_1\left(\frac{7}{2};-2;z\right)=\frac{1}{60}e^{z/2}z\left(z\left(4z\left(z\left(4z^2+58z+225\right)+225\right)-15\right)I_0\left(\frac{z}{2}\right)+\left(z\left(4z\left(z\left(4z^2+54z+173\right)+75\right)-135\right)+60\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0445.01

$${}_1\tilde{F}_1\left(\frac{7}{2};-\frac{3}{2};z\right)=\frac{e^z(2z(4z(2z(z+5)(2z+15)+75)-75)+45)}{60\sqrt{\pi}}$$

07.21.03.0446.01

$${}_1\tilde{F}_1\left(\frac{7}{2};-1;z\right)=\frac{1}{30}e^{z/2}z\left(4z(z(2z(z+12)+75)+60)I_0\left(\frac{z}{2}\right)+(4z(2z(z(z+11)+27)+15)-15)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0085.01

$${}_1\tilde{F}_1\left(\frac{7}{2};-\frac{1}{2};z\right)=\frac{e^z\left(16z^4+160z^3+360z^2+120z-15\right)}{30\sqrt{\pi}}$$

07.21.03.0447.01

$${}_1\tilde{F}_1\left(\frac{7}{2};0;z\right)=\frac{1}{30}e^{z/2}z\left((4z(z+5)(2z+9)+105)I_0\left(\frac{z}{2}\right)+(4z(z(2z+17)+29)+15)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0086.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{1}{2};z\right)=\frac{e^z}{\sqrt{\pi}}\left(1+6z+4z^2+\frac{8z^3}{15}\right)$$

07.21.03.0087.01

$${}_1\tilde{F}_1\left(\frac{7}{2};1;z\right)=\frac{1}{15}e^{z/2}\left(\left(4z^3+28z^2+45z+15\right)I_0\left(\frac{z}{2}\right)+z\left(4z^2+24z+23\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0088.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{3}{2};z\right)=\frac{2e^z\left(15+20z+4z^2\right)}{15\sqrt{\pi}}$$

07.21.03.0089.01

$${}_1\tilde{F}_1\left(\frac{7}{2};2;z\right)=\frac{1}{15}e^{z/2}\left(\left(4z^2+18z+15\right)I_0\left(\frac{z}{2}\right)+\left(4z^2+14z+3\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0090.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{5}{2};z\right)=\frac{4e^z(5+2z)}{15\sqrt{\pi}}$$

07.21.03.0091.01

$${}_1\tilde{F}_1\left(\frac{7}{2};3;z\right)=\frac{2}{15z}e^{z/2}\left(2z(z+2)I_0\left(\frac{z}{2}\right)+\left(2z^2+2z-1\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0448.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{7}{2};z\right)=\frac{8\,e^z}{15\sqrt{\pi}}$$

07.21.03.0092.01

$${}_1\tilde{F}_1\left(\frac{7}{2};4;z\right)=\frac{2}{15\,z^2}\,e^{z/2}\left(z\,(2\,z-1)\,I_0\left(\frac{z}{2}\right)+\left(2\,z^2-3\,z+4\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0449.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{9}{2};z\right)=\frac{2\,e^z\,(2\,z\,(2\,z-5)+15)}{15\sqrt{\pi}\,z^3}-\frac{\operatorname{erfi}\left(\sqrt{z}\right)}{z^{7/2}}$$

07.21.03.0450.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{9}{2};-z\right)=\frac{\operatorname{erf}\left(\sqrt{z}\right)}{z^{7/2}}-\frac{2\,e^{-z}\,(2\,z\,(2\,z+5)+15)}{15\sqrt{\pi}\,z^3}$$

07.21.03.0451.01

$${}_1\tilde{F}_1\left(\frac{7}{2};5;z\right)=\frac{4\,e^{z/2}\left((z-3)\,z\,I_0\left(\frac{z}{2}\right)+((z-4)\,z+12)\,I_1\left(\frac{z}{2}\right)\right)}{15\,z^3}$$

07.21.03.0452.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{11}{2};z\right)=\frac{e^z\,(8\,(z-5)\,z+105)}{15\sqrt{\pi}\,z^4}-\frac{(2\,z+7)\operatorname{erfi}\left(\sqrt{z}\right)}{2\,z^{9/2}}$$

07.21.03.0453.01

$${}_1\tilde{F}_1\left(\frac{7}{2};\frac{11}{2};-z\right)=\frac{e^{-z}\,(8\,z\,(z+5)+105)}{15\sqrt{\pi}\,z^4}+\frac{(2\,z-7)\operatorname{erf}\left(\sqrt{z}\right)}{2\,z^{9/2}}$$

07.21.03.0454.01

$${}_1\tilde{F}_1\left(\frac{7}{2};6;z\right)=\frac{4\,e^{z/2}\left((z-8)\,z\,I_0\left(\frac{z}{2}\right)+((z-4)\,z+32)\,I_1\left(\frac{z}{2}\right)\right)}{15\,z^4}$$

For fixed z and $a = 4$

07.21.03.0455.01

$${}_1\tilde{F}_1\left(4;-\frac{11}{2};z\right)=\frac{1}{192\sqrt{\pi}}\left(4\,e^z\sqrt{\pi}\,(2\,z\,(2\,z\,(2\,z+57)+969)+4845)\operatorname{erf}\left(\sqrt{z}\right)z^{13/2}+\right.$$
$$\left.8\,(z\,(z\,(z\,(z\,(z\,(4\,z\,(z+28)+915)+2016)-672)+630)-900)+1575)-2835)\,z+31\,185\right)$$

07.21.03.0456.01

$${}_1\tilde{F}_1\left(4;-\frac{11}{2};-z\right)=\frac{1}{192\sqrt{\pi}}\left(e^{-z}\left(4\sqrt{\pi}\,(2\,z\,(2\,z\,(2\,z-57)+969)-4845)\operatorname{erfi}\left(\sqrt{z}\right)z^{13/2}+\right.\right.$$
$$\left.\left.e^z\,(8\,z\,(z\,(z\,(z\,(z\,(z\,(-4\,(z-28)\,z-915)+2016)+672)+630)+900)+1575)+2835)+31\,185)\right)\right)$$

07.21.03.0457.01

$${}_1\tilde{F}_1(4;-5;z)=\frac{1}{6}\,e^z\,z^6\,(z\,(z\,(z+27)+216)+504)$$

07.21.03.0458.01

$${}_1\tilde{F}_1\left(4; -\frac{9}{2}; z\right) = \frac{1}{96\sqrt{\pi}} \left(2\, e^z \sqrt{\pi}\, (2\, z\, (2\, z\, (2\, z + 51) + 765) + 3315)\, \mathrm{erf}\left(\sqrt{z}\right) z^{11/2} + 4\, (z\, (z\, (z\, (z\, (4\, z\, (z + 25) + 717) + 1344) - 420) + 360) - 450) + 630)\, z - 2835\right)$$

07.21.03.0459.01

$${}_1\tilde{F}_1\left(4; -\frac{9}{2}; -z\right) = \frac{1}{96\sqrt{\pi}} \left(e^{-z} \left(2\sqrt{\pi}\, (3315 - 2\, z\, (2\, z\, (2\, z - 51) + 765))\, \mathrm{erfi}\left(\sqrt{z}\right) z^{11/2} + e^z\, (4\, z\, (z\, (z\, (z\, (z\, (4\, (z - 25)\, z + 717) - 1344) - 420) - 360) - 450) - 630) - 2835)\right)\right)$$

07.21.03.0460.01

$${}_1\tilde{F}_1(4; -4; z) = \frac{1}{6}\, e^z\, z^5\, (z\, (z\, (z + 24) + 168) + 336)$$

07.21.03.0461.01

$${}_1\tilde{F}_1\left(4; -\frac{7}{2}; z\right) = \frac{1}{48\sqrt{\pi}} \left(e^z \sqrt{\pi}\, \left(2\, z\left(4\, z^2 + 90\, z + 585\right) + 2145\right) \mathrm{erf}\left(\sqrt{z}\right) z^{9/2} + 2\, (z\, (z\, (z\, (z\, (4\, z\, (z + 22) + 543) + 840) - 240) + 180) - 180)\, z + 315\right)$$

07.21.03.0462.01

$${}_1\tilde{F}_1\left(4; -\frac{7}{2}; -z\right) = \frac{1}{48\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, \left(2\, z\left(4\, z^2 - 90\, z + 585\right) - 2145\right) \mathrm{erfi}\left(\sqrt{z}\right) z^{9/2} + e^z\, (2\, z\, (z\, (z\, (z\, (z\, (-4\, (z - 22)\, z - 543) + 840) + 240) + 180) + 180) + 315)\right)\right)$$

07.21.03.0463.01

$${}_1\tilde{F}_1(4; -3; z) = \frac{1}{6}\, e^z\, z^4\, (z\, (z\, (z + 21) + 126) + 210)$$

07.21.03.0464.01

$${}_1\tilde{F}_1\left(4; -\frac{5}{2}; z\right) = \frac{1}{48\sqrt{\pi}} \left(e^z \sqrt{\pi}\, \left(2\, z\left(4\, z^2 + 78\, z + 429\right) + 1287\right) \mathrm{erf}\left(\sqrt{z}\right) z^{7/2} + 2\, (z\, (z\, (z\, (z\, (4\, z\, (z + 19) + 393) + 480) - 120) + 72) - 45)\right)$$

07.21.03.0465.01

$${}_1\tilde{F}_1\left(4; -\frac{5}{2}; -z\right) = \frac{1}{48\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, \left(1287 - 2\, z\left(4\, z^2 - 78\, z + 429\right)\right) \mathrm{erfi}\left(\sqrt{z}\right) z^{7/2} + 2\, e^z\, (z\, (z\, (z\, (z\, (4\, (z - 19)\, z + 393) - 480) - 120) - 72) - 45)\right)\right)$$

07.21.03.0466.01

$${}_1\tilde{F}_1(4; -2; z) = \frac{1}{6}\, e^z\, z^3\, (z\, (z\, (z + 18) + 90) + 120)$$

07.21.03.0467.01

$${}_1\tilde{F}_1\left(4; -\frac{3}{2}; z\right) = \frac{1}{48\sqrt{\pi}} \left(e^z \sqrt{\pi}\, \left(2\, z\left(4\, z^2 + 66\, z + 297\right) + 693\right) \mathrm{erf}\left(\sqrt{z}\right) z^{5/2} + 2\, (z\, (z\, (4\, z\, (z + 16) + 267) + 240) - 48)\, z + 36\right)$$

07.21.03.0468.01

$$ {}_1\tilde{F}_1\left(4; -\frac{3}{2}; -z\right) = \frac{1}{48\sqrt{\pi}}\left(e^{-z}\left(\sqrt{\pi}\, z^{5/2}\left(2\,z\left(4\,z^2-66\,z+297\right)-693\right)\operatorname{erfi}\left(\sqrt{z}\right)-2\,e^z\left(z\left(z\left(z\left(4\left(z-16\right)z+267\right)-240\right)-48\right)-18\right)\right)\right) $$

07.21.03.0469.01

$$ {}_1\tilde{F}_1(4; -1; z) = \frac{1}{6}\, e^z\, z^2\,(z\,(z\,(z+15)+60)+60) $$

07.21.03.0093.01

$$ {}_1\tilde{F}_1\left(4; -\frac{1}{2}; z\right) = \frac{e^z\sqrt{\pi}\left(8\,z^3+108\,z^2+378\,z+315\right)\operatorname{erf}\left(\sqrt{z}\right)z^{3/2}+2\left(4\,z^4+52\,z^3+165\,z^2+96\,z-12\right)}{48\sqrt{\pi}} $$

07.21.03.0470.01

$$ {}_1\tilde{F}_1\left(4; -\frac{1}{2}; -z\right) = \frac{e^{-z}\left(\sqrt{\pi}\left(315-2\,z\left(4\,z^2-54\,z+189\right)\right)\operatorname{erfi}\left(\sqrt{z}\right)z^{3/2}+2\,e^z\left(z\left(z\left(4\left(z-13\right)z+165\right)-96\right)-12\right)\right)}{48\sqrt{\pi}} $$

07.21.03.0471.01

$$ {}_1\tilde{F}_1(4; 0; z) = \frac{1}{6}\, e^z\, z\left(z\,(z+6)^2+24\right) $$

07.21.03.0094.01

$$ {}_1\tilde{F}_1\left(4; \frac{1}{2}; z\right) = \frac{1}{48\sqrt{\pi}}\left(8\,z^3+80\,z^2+174\,z+e^z\sqrt{\pi}\left(8\,z^3+84\,z^2+210\,z+105\right)\operatorname{erf}\left(\sqrt{z}\right)\sqrt{z}+48\right) $$

07.21.03.0472.01

$$ {}_1\tilde{F}_1\left(4; \frac{1}{2}; -z\right) = \frac{1}{48}\left(\frac{48-2\,z\,(4\,(z-10)\,z+87)}{\sqrt{\pi}}+e^{-z}\sqrt{z}\left(8\,z^3-84\,z^2+210\,z-105\right)\operatorname{erfi}\left(\sqrt{z}\right)\right) $$

07.21.03.0095.01

$$ {}_1\tilde{F}_1(4; 1; z) = \frac{1}{6}\, e^z\left(6+18\,z+9\,z^2+z^3\right) $$

07.21.03.0096.01

$$ {}_1\tilde{F}_1\left(4; \frac{3}{2}; z\right) = \frac{2\sqrt{z}\left(4\,z^2+28\,z+33\right)+e^z\sqrt{\pi}\left(8\,z^3+60\,z^2+90\,z+15\right)\operatorname{erf}\left(\sqrt{z}\right)}{48\sqrt{\pi}\sqrt{z}} $$

07.21.03.0473.01

$$ {}_1\tilde{F}_1\left(4; \frac{3}{2}; -z\right) = \frac{1}{48}\left(\frac{8\,(z-7)\,z+66}{\sqrt{\pi}}+\frac{e^{-z}\left(-8\,z^3+60\,z^2-90\,z+15\right)\operatorname{erfi}\left(\sqrt{z}\right)}{\sqrt{z}}\right) $$

07.21.03.0097.01

$$ {}_1\tilde{F}_1(4; 2; z) = e^z\left(1+z+\frac{z^2}{6}\right) $$

07.21.03.0098.01

$$ {}_1\tilde{F}_1\left(4; \frac{5}{2}; z\right) = \frac{2\sqrt{z}\left(4\,z^2+16\,z+3\right)+e^z\sqrt{\pi}\left(8\,z^3+36\,z^2+18\,z-3\right)\operatorname{erf}\left(\sqrt{z}\right)}{48\sqrt{\pi}\, z^{3/2}} $$

07.21.03.0474.01

$$ {}_1\tilde{F}_1\left(4; \frac{5}{2}; -z\right) = \frac{e^{-z} (2 z (2 z (2 z - 9) + 9) + 3) \operatorname{erfi}\left(\sqrt{z}\right) - \frac{2 \sqrt{z} (4 (z-4) z+3)}{\sqrt{\pi}}}{48 z^{3/2}} $$

07.21.03.0099.01

$$ {}_1\tilde{F}_1(4; 3; z) = \frac{1}{6} e^z (3 + z) $$

07.21.03.0100.01

$$ {}_1\tilde{F}_1\left(4; \frac{7}{2}; z\right) = \frac{2 \sqrt{z} \left(4 z^2 + 4 z - 3\right) + e^z \sqrt{\pi} \left(8 z^3 + 12 z^2 - 6 z + 3\right) \operatorname{erf}\left(\sqrt{z}\right)}{48 \sqrt{\pi} z^{5/2}} $$

07.21.03.0475.01

$$ {}_1\tilde{F}_1\left(4; \frac{7}{2}; -z\right) = \frac{\frac{2 \sqrt{z} (4 (z-1) z-3)}{\sqrt{\pi}} + e^{-z} \left(2 z \left(-4 z^2 + 6 z + 3\right) + 3\right) \operatorname{erfi}\left(\sqrt{z}\right)}{48 z^{5/2}} $$

07.21.03.0476.01

$$ {}_1\tilde{F}_1(4; 4; z) = \frac{e^z}{6} $$

07.21.03.0477.01

$$ {}_1\tilde{F}_1\left(4; \frac{9}{2}; z\right) = \frac{2 \sqrt{z} (4 (z - 2) z + 15) + e^z \sqrt{\pi} \left(2 z \left(4 z^2 - 6 z + 9\right) - 15\right) \operatorname{erf}\left(\sqrt{z}\right)}{48 \sqrt{\pi} z^{7/2}} $$

07.21.03.0478.01

$$ {}_1\tilde{F}_1\left(4; \frac{9}{2}; -z\right) = \frac{e^{-z} \left(2 z \left(4 z^2 + 6 z + 9\right) + 15\right) \operatorname{erfi}\left(\sqrt{z}\right) - \frac{2 \sqrt{z} (4 z (z+2)+15)}{\sqrt{\pi}}}{48 z^{7/2}} $$

07.21.03.0479.01

$$ {}_1\tilde{F}_1(4; 5; z) = \frac{e^z (z ((z - 3) z + 6) - 6) + 6}{6 z^4} $$

07.21.03.0480.01

$$ {}_1\tilde{F}_1\left(4; \frac{11}{2}; z\right) = \frac{2 \sqrt{z} (4 (z - 5) z + 105) + e^z \sqrt{\pi} (2 z (2 z (2 z - 9) + 45) - 105) \operatorname{erf}\left(\sqrt{z}\right)}{48 \sqrt{\pi} z^{9/2}} $$

07.21.03.0481.01

$$ {}_1\tilde{F}_1\left(4; \frac{11}{2}; -z\right) = \frac{4 z (z + 5) + 105}{24 \sqrt{\pi} z^4} - \frac{e^{-z} (2 z (2 z (2 z + 9) + 45) + 105) \operatorname{erfi}\left(\sqrt{z}\right)}{48 z^{9/2}} $$

07.21.03.0482.01

$$ {}_1\tilde{F}_1(4; 6; z) = \frac{6 (z + 4) + e^z (z ((z - 6) z + 18) - 24)}{6 z^5} $$

For fixed z and $a = \frac{9}{2}$

07.21.03.0483.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -\frac{11}{2}; z\right) = \frac{1}{6720\sqrt{\pi}} \left(e^z (4 z (z (8 z (z (4 z (z (2 z (z (4 z (z + 35) + 1575) + 6300) + 11025) - 6615) + 33075) - 47250) + 496125) - 496125) + 1091475)\right) $$

07.21.03.0484.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -5; z\right) = \frac{1}{840} e^{z/2} z \left(z (z (z (8 z (z (2 z (z (4 z (z + 34) + 1511) + 6300) + 15435) - 1470) + 15435) - 17640) + 12600) I_0\left(\frac{z}{2}\right) + (z (z (z (8 z (z (2 z (z + 17) (4 z (z + 16) + 293) + 6615) - 5145) + 49245) - 63315) + 70560) - 50400) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0485.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -\frac{9}{2}; z\right) = \frac{1}{3360\sqrt{\pi}} \left(e^z (2 z (8 z (2 z (z (2 z (4 z (z (z (2 z + 63) + 630) + 2205) + 6615) - 6615) + 6615) - 14175) + 99225) - 99225)\right) $$

07.21.03.0486.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -4; z\right) = \frac{1}{840} e^{z/2} z \left(z (z (2 z (4 z (2 z (z (2 z (2 z + 61) + 1203) + 4410) + 9555) - 2205) + 4095) - 2520) I_0\left(\frac{z}{2}\right) + (z (z (2 z (4 z (2 z (z (2 z (2 z + 59) + 1087) + 3378) + 3675) - 9555) + 17955) - 16380) + 10080) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0487.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -\frac{7}{2}; z\right) = \frac{e^z (16 z (z (2 z (z (8 z (z (z (z + 28) + 245) + 735) + 3675) - 1470) + 2205) - 1575) + 11025)}{1680\sqrt{\pi}} $$

07.21.03.0488.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -3; z\right) = \frac{1}{420} e^{z/2} z \left(z (2 z (z (8 z (z (2 z (z + 27) + 465) + 1470) + 11025) - 315) + 315) I_0\left(\frac{z}{2}\right) + 2 (z (z (z (16 z (z (z (z + 26) + 207) + 540) + 3675) - 1890) + 1260) - 630) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0489.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -\frac{5}{2}; z\right) = \frac{e^z \left(2 z \left(2 z \left(2 z \left(2 z \left(2 z \left(4 z^2 + 98 z + 735\right) + 3675\right) + 3675\right) - 2205\right) + 2205\right) - 1575\right)}{840\sqrt{\pi}} $$

07.21.03.0490.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -2; z\right) = \frac{1}{420} e^{z/2} z \left(z (2 z (2 z (4 z (z (2 z + 47) + 346) + 3675) + 5775) - 105) I_0\left(\frac{z}{2}\right) + (z (2 z (2 z (4 z (z (2 z + 45) + 302) + 2549) + 1575) - 1155) + 420) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0491.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -\frac{3}{2}; z\right) = \frac{e^z (4 z (z (4 z (z (4 z (z + 21) + 525) + 1050) + 1575) - 315) + 315)}{420\sqrt{\pi}} $$

07.21.03.0492.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -1; z\right) = $$
$$ \frac{1}{210} e^{z/2} z \left(z (4 z (z (4 z (z+20)+489)+1050)+2625) I_0\left(\frac{z}{2}\right) + (z (4 z (z+3) (4 z (z+16)+223)+525)-105) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0493.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; -\frac{1}{2}; z\right) = \frac{e^z (2 z (4 z (2 z (z (2 z+35)+175)+525)+525)-105)}{210 \sqrt{\pi}} $$

07.21.03.0494.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; 0; z\right) = \frac{1}{210} e^{z/2} z \left((2 z+9) (2 z (4 z (z+12)+105)+105) I_0\left(\frac{z}{2}\right) + \left(4 z \left(z \left(4 z^2+62 z+261\right)+291\right)+105\right) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0495.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; \frac{1}{2}; z\right) = \frac{e^z \left(\frac{8}{105} z (z (2 z (z+14)+105)+105)+1\right)}{\sqrt{\pi}} $$

07.21.03.0496.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; 1; z\right) = \frac{1}{105} e^{z/2} \left((4 z (2 z (z (z+13)+47)+105)+105) I_0\left(\frac{z}{2}\right) + 4 z (z (2 z (z+12)+71)+44) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0497.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; \frac{3}{2}; z\right) = \frac{2 e^z \left(\frac{8 z^3}{105} + \frac{4 z^2}{5} + 2 z + 1\right)}{\sqrt{\pi}} $$

07.21.03.0498.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; 2; z\right) = \frac{1}{105} e^{z/2} \left((4 z (z+5) (2 z+9)+105) I_0\left(\frac{z}{2}\right) + (4 z (z (2 z+17)+29)+15) I_1\left(\frac{z}{2}\right)\right) $$

07.21.03.0499.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; \frac{5}{2}; z\right) = \frac{4 e^z (4 z (z+7)+35)}{105 \sqrt{\pi}} $$

07.21.03.0500.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; 3; z\right) = \frac{2 e^{z/2} \left(z (2 z+3) (2 z+9) I_0\left(\frac{z}{2}\right) + (z (4 z (z+5)+9)-3) I_1\left(\frac{z}{2}\right)\right)}{105 z} $$

07.21.03.0501.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; \frac{7}{2}; z\right) = \frac{8 e^z (2 z+7)}{105 \sqrt{\pi}} $$

07.21.03.0502.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; 4; z\right) = \frac{2 e^{z/2} \left(z (2 z (2 z+5)-1) I_0\left(\frac{z}{2}\right) + \left(z \left(4 z^2+6 z-5\right)+4\right) I_1\left(\frac{z}{2}\right)\right)}{105 z^2} $$

07.21.03.0503.01

$$ {}_1\tilde{F}_1\left(\frac{9}{2}; \frac{9}{2}; z\right) = \frac{16 e^z}{105 \sqrt{\pi}} $$

07.21.03.0504.01

$${}_1\tilde{F}_1\left(\frac{9}{2}; 5; z\right) = \frac{4\, e^{z/2} \left(z\,(2\,(z-1)\,z+3)\, I_0\left(\frac{z}{2}\right) + 2\,(z\,((z-2)\,z+4)-6)\, I_1\left(\frac{z}{2}\right)\right)}{105\, z^3}$$

07.21.03.0505.01

$${}_1\tilde{F}_1\left(\frac{9}{2}; \frac{11}{2}; z\right) = \frac{2\, e^z\,(2\,z\,(2\,z\,(2\,z-7)+35)-105)}{105\,\sqrt{\pi}\, z^4} + \frac{\operatorname{erfi}\left(\sqrt{z}\right)}{z^{9/2}}$$

07.21.03.0506.01

$${}_1\tilde{F}_1\left(\frac{9}{2}; \frac{11}{2}; -z\right) = \frac{\operatorname{erf}\left(\sqrt{z}\right)}{z^{9/2}} - \frac{2\, e^{-z}\,(2\,z\,(2\,z\,(2\,z+7)+35)+105)}{105\,\sqrt{\pi}\, z^4}$$

07.21.03.0507.01

$${}_1\tilde{F}_1\left(\frac{9}{2}; 6; z\right) = \frac{4\, e^{z/2} \left(z\,(z\,(2\,z-9)+24)\, I_0\left(\frac{z}{2}\right) + (z-4)\,(z\,(2\,z-3)+24)\, I_1\left(\frac{z}{2}\right)\right)}{105\, z^4}$$

For fixed z and $a = 5$

07.21.03.0508.01

$${}_1\tilde{F}_1\left(5; -\frac{11}{2}; z\right) = \frac{1}{384\,\sqrt{\pi}} \left(e^z\,\sqrt{\pi}\,(8\,z\,(z\,(2\,z\,(z+42)+1197)+6783)+101\,745)\operatorname{erf}\left(\sqrt{z}\right) z^{13/2} + 2\,(z\,(z\,(z\,(z\,(z\,(2\,z\,(2\,z\,(2\,z+83)+2313)+24\,975)+40\,320)-12\,096)+10\,080)-12\,600)+18\,900)-28\,350)\,z + 62\,370\right)$$

07.21.03.0509.01

$${}_1\tilde{F}_1\left(5; -\frac{11}{2}; -z\right) = \frac{1}{384\,\sqrt{\pi}} \left(e^{-z}\left(\sqrt{\pi}\,(8\,z\,(z\,(-2\,(z-42)\,z-1197)+6783)-101\,745)\operatorname{erfi}\left(\sqrt{z}\right) z^{13/2} + 2\, e^z\,(z\,(z\,(z\,(z\,(z\,(z\,(2\,z\,(2\,z\,(2\,z-83)+2313)-24\,975)+40\,320)+12\,096)+10\,080)+12\,600)+18\,900)+28\,350)+31\,185)\right)\right)$$

07.21.03.0510.01

$${}_1\tilde{F}_1(5; -5; z) = \frac{1}{24}\, e^z\, z^6\,(z\,(z\,(z\,(z+40)+540)+2880)+5040)$$

07.21.03.0511.01

$${}_1\tilde{F}_1\left(5; -\frac{9}{2}; z\right) = \frac{1}{384\,\sqrt{\pi}} \left(e^z\,\sqrt{\pi}\,(8\,z\,(z\,(2\,z\,(z+38)+969)+4845)+62\,985)\operatorname{erf}\left(\sqrt{z}\right) z^{11/2} + 2\,(z\,(z\,(z\,(z\,(z\,(2\,z+21)\,(z\,(4\,z\,(z+27)+731)+1152)-6720)+5040)-5400)+6300)-5670)\right)$$

07.21.03.0512.01

$${}_1\tilde{F}_1\left(5; -\frac{9}{2}; -z\right) = \frac{1}{384\,\sqrt{\pi}} \left(e^{-z}\left(\sqrt{\pi}\, z^{11/2}\,(8\,z\,(z\,(2\,(z-38)\,z+969)-4845)+62\,985)\operatorname{erfi}\left(\sqrt{z}\right) - 2\, e^z\,(z\,(z\,(z\,(z\,(z\,(2\,z-21)\,(z\,(4\,(z-27)\,z+731)-1152)+6720)+5040)+5400)+6300)+5670)\right)\right)$$

07.21.03.0513.01

$${}_1\tilde{F}_1(5; -4; z) = \frac{1}{24}\, e^z\, z^5\,(z+6)\,(z\,(z\,(z+30)+252)+504)$$

07.21.03.0514.01

$${}_1\tilde{F}_1\left(5; -\frac{7}{2}; z\right) = \frac{1}{384\sqrt{\pi}} \left(e^z \sqrt{\pi}\ (8 z (z (2 z (z+34)+765)+3315)+36465) \operatorname{erf}\left(\sqrt{z}\right) z^{9/2} + 2 (z (z (z (2 z (2 z (2 z+67)+1465)+11919)+13440)-3360)+2160)-1800) z+2520\right)$$

07.21.03.0515.01

$${}_1\tilde{F}_1\left(5; -\frac{7}{2}; -z\right) = \frac{1}{384\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\ (-8 z (z (2 (z-34) z+765)-3315)-36465) \operatorname{erfi}\left(\sqrt{z}\right) z^{9/2} + 2 e^z (z (z (z (z (2 z (2 z (2 z-67)+1465)-11919)+13440)+3360)+2160)+1800)+1260)\right)\right)$$

07.21.03.0516.01

$${}_1\tilde{F}_1(5; -3; z) = \frac{1}{24} e^z z^4 (z (z (z (z+32)+336)+1344)+1680)$$

07.21.03.0517.01

$${}_1\tilde{F}_1\left(5; -\frac{5}{2}; z\right) = \frac{1}{384\sqrt{\pi}} \left(e^z \sqrt{\pi}\ (8 z (z (2 z (z+30)+585)+2145)+19305) \operatorname{erf}\left(\sqrt{z}\right) z^{7/2} + 2 (z (z (z (z (2 z (2 z (2 z+59)+1113)+7575)+6720)-1440)+720)-360)\right)$$

07.21.03.0518.01

$${}_1\tilde{F}_1\left(5; -\frac{5}{2}; -z\right) = \frac{1}{384\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\ z^{7/2} (8 z (z (2 (z-30) z+585)-2145)+19305) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z (z (z (z (z (2 z (2 z (2 z-59)+1113)-7575)+6720)+1440)+720)+360)\right)\right)$$

07.21.03.0519.01

$${}_1\tilde{F}_1(5; -2; z) = \frac{1}{24} e^z z^3 (z (z (z (z+28)+252)+840)+840)$$

07.21.03.0520.01

$${}_1\tilde{F}_1\left(5; -\frac{3}{2}; z\right) = \frac{1}{384\sqrt{\pi}} \left(e^z \sqrt{\pi}\ (8 z (z (2 z (z+26)+429)+1287)+9009) \operatorname{erf}\left(\sqrt{z}\right) z^{5/2} + 2 (z (z (2 z (2 z (2 z+51)+809)+4431)+2880)-480) z+288\right)$$

07.21.03.0521.01

$${}_1\tilde{F}_1\left(5; -\frac{3}{2}; -z\right) = \frac{1}{384\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\ (-8 z (z (2 (z-26) z+429)-1287)-9009) \operatorname{erfi}\left(\sqrt{z}\right) z^{5/2} + 2 e^z (z (z (z (2 z (2 z (2 z-51)+809)-4431)+2880)+480)+144)\right)\right)$$

07.21.03.0522.01

$${}_1\tilde{F}_1(5; -1; z) = \frac{1}{24} e^z z^2 (z (z (z (z+24)+180)+480)+360)$$

07.21.03.0523.01

$${}_1\tilde{F}_1\left(5; -\frac{1}{2}; z\right) = \frac{1}{384\sqrt{\pi}} \left(e^z \sqrt{\pi}\ (8 z (z (2 z (z+22)+297)+693)+3465) \operatorname{erf}\left(\sqrt{z}\right) z^{3/2} + 2 \left(z \left(z \left(2 z \left(4 z^2+86 z+553\right)+2295\right)+960\right)-96\right)\right)$$

07.21.03.0524.01

$${}_1\tilde{F}_1\left(5; -\frac{1}{2}; -z\right) = \frac{1}{384\sqrt{\pi}} \left(e^{-z}\left(\sqrt{\pi}\, z^{3/2}\,(8\,z\,(z\,(2\,(z-22)\,z+297)-693)+3465)\,\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^z\left(z\left(z\left(2\,z\left(4\,z^2-86\,z+553\right)-2295\right)+960\right)+96\right)\right)\right)$$

07.21.03.0525.01

$${}_1\tilde{F}_1(5; 0; z) = 5\,e^z\,z\left(\frac{z^4}{120}+\frac{z^3}{6}+z^2+2\,z+1\right)$$

07.21.03.0526.01

$${}_1\tilde{F}_1\left(5; \frac{1}{2}; z\right) = \frac{1}{384\sqrt{\pi}}\left(2\,(z\,(2\,z+5)\,(4\,z\,(z+15)+195)+192)+e^z\sqrt{\pi}\,\sqrt{z}\,(8\,z\,(z\,(2\,z\,(z+18)+189)+315)+945)\,\mathrm{erf}\left(\sqrt{z}\right)\right)$$

07.21.03.0527.01

$${}_1\tilde{F}_1\left(5; \frac{1}{2}; -z\right) = \frac{1}{384\sqrt{\pi}}\left(e^{-z}\left(2\,e^z\,(z\,(2\,z-5)\,(4\,(z-15)\,z+195)+192)+\sqrt{\pi}\,\sqrt{z}\,(-8\,z\,(z\,(2\,(z-18)\,z+189)-315)-945)\,\mathrm{erfi}\left(\sqrt{z}\right)\right)\right)$$

07.21.03.0528.01

$${}_1\tilde{F}_1(5; 1; z) = \frac{1}{24}\,e^z\,(z\,(z+4)\,(z\,(z+12)+24)+24)$$

07.21.03.0529.01

$${}_1\tilde{F}_1\left(5; \frac{3}{2}; z\right) = \frac{1}{384}\left(\frac{4\,z\left(4\,z^2+54\,z+185\right)+558}{\sqrt{\pi}}+\frac{e^z\,(8\,z\,(z\,(2\,z\,(z+14)+105)+105)+105)\,\mathrm{erf}\left(\sqrt{z}\right)}{\sqrt{z}}\right)$$

07.21.03.0530.01

$${}_1\tilde{F}_1\left(5; \frac{3}{2}; -z\right) = \frac{1}{384}\left(\frac{558-4\,z\left(4\,z^2-54\,z+185\right)}{\sqrt{\pi}}+\frac{e^{-z}\,(8\,z\,(z\,(2\,(z-14)\,z+105)-105)+105)\,\mathrm{erfi}\left(\sqrt{z}\right)}{\sqrt{z}}\right)$$

07.21.03.0531.01

$${}_1\tilde{F}_1(5; 2; z) = \frac{1}{24}\,e^z\left(z\,(z+6)^2+24\right)$$

07.21.03.0532.01

$${}_1\tilde{F}_1\left(5; \frac{5}{2}; z\right) = \frac{2\sqrt{z}\,(2\,z+5)\,(4\,z\,(z+7)+3)+e^z\sqrt{\pi}\,(8\,z\,(z\,(2\,z\,(z+10)+45)+15)-15)\,\mathrm{erf}\left(\sqrt{z}\right)}{384\sqrt{\pi}\,z^{3/2}}$$

07.21.03.0533.01

$${}_1\tilde{F}_1\left(5; \frac{5}{2}; -z\right) = \frac{e^{-z}\left(2\,e^z\sqrt{z}\,(2\,z-5)\,(4\,(z-7)\,z+3)+\sqrt{\pi}\,(15-8\,z\,(z\,(2\,(z-10)\,z+45)-15))\,\mathrm{erfi}\left(\sqrt{z}\right)\right)}{384\sqrt{\pi}\,z^{3/2}}$$

07.21.03.0534.01

$${}_1\tilde{F}_1(5; 3; z) = \frac{1}{24}\,e^z\,(z+2)\,(z+6)$$

07.21.03.0535.01

$${}_1\tilde{F}_1\left(5; \frac{7}{2}; z\right) = \frac{2\sqrt{z}\left(2\,z\left(4\,z^2+22\,z+9\right)-9\right)+e^z\sqrt{\pi}\,(8\,z\,(z\,(2\,z\,(z+6)+9)-3)+9)\,\mathrm{erf}\left(\sqrt{z}\right)}{384\sqrt{\pi}\,z^{5/2}}$$

07.21.03.0536.01

$$ {}_1\tilde{F}_1\left(5; \frac{7}{2}; -z\right) = \frac{e^{-z} \left(\sqrt{\pi}\, (8 z (z (2 (z-6) z+9)+3)+9) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z \sqrt{z}\, \left(2 z \left(4 z^2-22 z+9\right)+9\right)\right)}{384 \sqrt{\pi}\, z^{5/2}} $$

07.21.03.0537.01

$$ {}_1\tilde{F}_1(5; 4; z) = \frac{1}{24} e^z (z+4) $$

07.21.03.0538.01

$$ {}_1\tilde{F}_1\left(5; \frac{9}{2}; z\right) = \frac{2 \sqrt{z}\, (2 z+5) (4 (z-1) z+3) + e^z \sqrt{\pi}\, (8 z (z (2 z (z+2)-3)+3)-15) \operatorname{erf}\left(\sqrt{z}\right)}{384 \sqrt{\pi}\, z^{7/2}} $$

07.21.03.0539.01

$$ {}_1\tilde{F}_1\left(5; \frac{9}{2}; -z\right) = \frac{e^{-z} \left(2 e^z \sqrt{z}\, (2 z-5) (4 z (z+1)+3) + \sqrt{\pi}\, (8 z (z (3-2 (z-2) z)+3)+15) \operatorname{erfi}\left(\sqrt{z}\right)\right)}{384 \sqrt{\pi}\, z^{7/2}} $$

07.21.03.0540.01

$$ {}_1\tilde{F}_1(5; 5; z) = \frac{e^z}{24} $$

07.21.03.0541.01

$$ {}_1\tilde{F}_1\left(5; \frac{11}{2}; z\right) = \frac{2 \sqrt{z}\, (2 z (2 z (2 z-5)+25)-105) + e^z \sqrt{\pi}\, (8 z (z (2 (z-2) z+9)-15)+105) \operatorname{erf}\left(\sqrt{z}\right)}{384 \sqrt{\pi}\, z^{9/2}} $$

07.21.03.0542.01

$$ {}_1\tilde{F}_1\left(5; \frac{11}{2}; -z\right) = \frac{e^{-z} \left(\sqrt{\pi}\, (8 z (z (2 z (z+2)+9)+15)+105) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z \sqrt{z}\, (2 z (2 z (2 z+5)+25)+105)\right)}{384 \sqrt{\pi}\, z^{9/2}} $$

07.21.03.0543.01

$$ {}_1\tilde{F}_1(5; 6; z) = \frac{e^z (z (z ((z-4) z+12)-24)+24)-24}{24 z^5} $$

For fixed z and $a = \frac{11}{2}$

07.21.03.0544.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -\frac{11}{2}; z\right) = \frac{1}{60\,480 \sqrt{\pi}} (e^z (2 z (2 z (2 z (4 z (2 z (2 z (2 z (z (2 z (2 z (2 z+99)+3465)+51\,975)+155\,925)+218\,295)-218\,295)+467\,775)-2\,338\,875)+5\,457\,375)-9\,823\,275)+9\,823\,275)) $$

07.21.03.0545.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -5; z\right) = \frac{1}{7560} \left(e^{z/2} z \left(8 z (z (z (z (2 z (z (4 z (z (2 z (z+48)+1641)+12\,264)+155\,925)+158\,760)-19\,845)+22\,680)-22\,680)+14\,175) I_0\left(\frac{z}{2}\right) + (z (z (8 z (2 z (z (2 z (2 z (2 z (z (z+47)+774)+10\,761)+57\,813)+59\,535)-39\,690)+82\,215)-739\,935)+725\,760)-453\,600) I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0546.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -\frac{9}{2}; z\right) = \frac{1}{30240\sqrt{\pi}} \left(e^z \left(4z\left(z\left(8z\left(z\left(4z\left(z\left(2z\left(z\left(4z\left(z+45\right)+2835\right)+18900\right)+99225\right)+59535\right)-99225\right)+85050\right)-637875\right)+496125\right)-893025\right)\right) $$

07.21.03.0547.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -4; z\right) = \frac{1}{7560}\left(e^{z/2} z \left(z\left(z\left(8z\left(z\left(2z\left(z\left(4z\left(z\left(2z+87\right)+1335\right)+35457\right)+99225\right)+178605\right)-6615\right)+42525\right)-22680\right) I_0\left(\frac{z}{2}\right) + \left(z\left(z\left(8z\left(z\left(2z\left(z\left(4z\left(z\left(2z+85\right)+1251\right)+30615\right)+70797\right)+59535\right)-33075\right)+214515\right)-170100\right)+90720\right) I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0548.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -\frac{7}{2}; z\right) = \frac{1}{15120\sqrt{\pi}} \left(e^z \left(2z\left(8z\left(2z\left(z\left(2z\left(4z\left(z+21\right)\left(z\left(2z+39\right)+315\right)+59535\right)+59535\right)-19845\right)+25515\right)-127575\right)+99225\right)\right) $$

07.21.03.0549.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -3; z\right) = \frac{1}{3780}\left(e^{z/2} z \left(z\left(z\left(8z\left(z\left(2z\left(z\left(4z\left(z+39\right)+2121\right)+12315\right)+59535\right)+46305\right)-6615\right)+2835\right) I_0\left(\frac{z}{2}\right) + \left(z\left(z\left(8z\left(z\left(2z\left(z\left(4z\left(z+38\right)+1971\right)+10416\right)+40395\right)+13230\right)-46305\right)+26460\right)-11340\right) I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0550.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -\frac{5}{2}; z\right) = \frac{e^z \left(16z\left(z\left(2z\left(z\left(8z\left(z\left(z\left(z+36\right)+441\right)+2205\right)+33075\right)+13230\right)-6615\right)+2835\right)-14175\right)}{7560\sqrt{\pi}} $$

07.21.03.0551.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -2; z\right) = \frac{1}{3780}\left(e^{z/2} z \left(z\left(2z\left(4z\left(2z\left(z\left(2z\left(2z+69\right)+1635\right)+8130\right)+33075\right)+85995\right)-945\right) I_0\left(\frac{z}{2}\right) + \left(z\left(2z\left(4z\left(2z\left(z\left(2z\left(2z+67\right)+1503\right)+6690\right)+20955\right)+19845\right)-12285\right)+3780\right) I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0552.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -\frac{3}{2}; z\right) = \frac{e^z \left(2z\left(2z\left(2z\left(2z\left(2z\left(2z\left(2z+63\right)+1323\right)+11025\right)+33075\right)+19845\right)-6615\right)+2835\right)}{3780\sqrt{\pi}} $$

07.21.03.0553.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -1; z\right) = \frac{1}{1890}\left(e^{z/2} z \left(2z\left(2z+9\right)\left(z\left(2z\left(2z\left(2z+51\right)+753\right)+3255\right)+1890\right) I_0\left(\frac{z}{2}\right) + \left(2z\left(z\left(8z\left(z\left(2z\left(z+29\right)+549\right)+1986\right)+18969\right)+2835\right)-945\right) I_1\left(\frac{z}{2}\right)\right)\right) $$

07.21.03.0554.01

$$ {}_1\tilde{F}_1\left(\frac{11}{2}; -\frac{1}{2}; z\right) = \frac{e^z \left(4z\left(z\left(4z\left(z\left(4z\left(z+27\right)+945\right)+3150\right)+14175\right)+2835\right)-945\right)}{1890\sqrt{\pi}} $$

07.21.03.0555.01

$${}_1\tilde{F}_1\left(\frac{11}{2};0;z\right)=\frac{1}{1890}\left(e^{z/2}z\left((2z(2z(4z(z(2z+51)+426)+5631)+14175)+10395)I_0\left(\frac{z}{2}\right)+(2z(2z(4z(z(2z+49)+378)+4209)+6927)+945)I_1\left(\frac{z}{2}\right)\right)\right)$$

07.21.03.0556.01

$${}_1\tilde{F}_1\left(\frac{11}{2};\frac{1}{2};z\right)=\frac{e^z(2z(4z(2z(z(2z+45)+315)+1575)+4725)+945)}{945\sqrt{\pi}}$$

07.21.03.0557.01

$${}_1\tilde{F}_1\left(\frac{11}{2};1;z\right)=\frac{1}{945}e^{z/2}\left((z(4z(z(4z(z+21)+555)+1371)+4725)+945)I_0\left(\frac{z}{2}\right)+z(4z(z(4z(z+20)+477)+930)+1689)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0558.01

$${}_1\tilde{F}_1\left(\frac{11}{2};\frac{3}{2};z\right)=\frac{2e^z(8z(z(2z(z+18)+189)+315)+945)}{945\sqrt{\pi}}$$

07.21.03.0559.01

$${}_1\tilde{F}_1\left(\frac{11}{2};2;z\right)=\frac{1}{945}e^{z/2}\left((2z+9)(2z(4z(z+12)+105)+105)I_0\left(\frac{z}{2}\right)+\left(4z\left(z\left(4z^2+62z+261\right)+291\right)+105\right)I_1\left(\frac{z}{2}\right)\right)$$

07.21.03.0560.01

$${}_1\tilde{F}_1\left(\frac{11}{2};\frac{5}{2};z\right)=\frac{4e^z\left(2z\left(4z^2+54z+189\right)+315\right)}{945\sqrt{\pi}}$$

07.21.03.0561.01

$${}_1\tilde{F}_1\left(\frac{11}{2};3;z\right)=\frac{2e^{z/2}\left(4z(z(2z(z+12)+75)+60)I_0\left(\frac{z}{2}\right)+(4z(2z(z(z+11)+27)+15)-15)I_1\left(\frac{z}{2}\right)\right)}{945z}$$

07.21.03.0562.01

$${}_1\tilde{F}_1\left(\frac{11}{2};\frac{7}{2};z\right)=\frac{8e^z(4z(z+9)+63)}{945\sqrt{\pi}}$$

07.21.03.0563.01

$${}_1\tilde{F}_1\left(\frac{11}{2};4;z\right)=\frac{2e^{z/2}\left(z(4z(z(2z+15)+21)-3)I_0\left(\frac{z}{2}\right)+(z(4z(z(2z+13)+9)-21)+12)I_1\left(\frac{z}{2}\right)\right)}{945z^2}$$

07.21.03.0564.01

$${}_1\tilde{F}_1\left(\frac{11}{2};\frac{9}{2};z\right)=\frac{16e^z(2z+9)}{945\sqrt{\pi}}$$

07.21.03.0565.01

$${}_1\tilde{F}_1\left(\frac{11}{2};5;z\right)=\frac{4e^{z/2}\left(z(z(4z(z+3)-3)+3)I_0\left(\frac{z}{2}\right)+(z(z(4z(z+2)-9)+12)-12)I_1\left(\frac{z}{2}\right)\right)}{945z^3}$$

07.21.03.0566.01

$${}_1\tilde{F}_1\left(\frac{11}{2};\frac{11}{2};z\right)=\frac{32e^z}{945\sqrt{\pi}}$$

07.21.03.0567.01

$${}_1\tilde{F}_1\left(\frac{11}{2}; 6; z\right) = \frac{4\, e^{z/2} \left(z\left(z\left(4 z^2 - 6 z + 15\right) - 24\right) I_0\left(\frac{z}{2}\right) + (z\,(z\,(2\,z\,(2\,z - 5) + 27) - 60) + 96)\, I_1\left(\frac{z}{2}\right)\right)}{945\, z^4}$$

For fixed z and $a = 6$

07.21.03.0568.01

$${}_1\tilde{F}_1\left(6; -\frac{11}{2}; z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^z \sqrt{\pi}\, (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z + 115) + 2415) + 45\,885) + 780\,045) + 2\,340\,135)\, \operatorname{erf}\left(\sqrt{z}\right) z^{13/2} + 2\,(z\,(z\,(z\,(z\,(z\,(z\,(4\,z\,(2\,z\,(2\,z\,(z + 57) + 2359) + 43\,635) + 701\,145) + 887\,040) - 241\,920) + 181\,440) - 201\,600) + 264\,600) - 340\,200) + 311\,850)\right)$$

07.21.03.0569.01

$${}_1\tilde{F}_1\left(6; -\frac{11}{2}; -z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, z^{13/2}\, (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z - 115) + 2415) - 45\,885) + 780\,045) - 2\,340\,135)\, \operatorname{erfi}\left(\sqrt{z}\right) - 2\, e^z (z\,(z\,(z\,(z\,(z\,(z\,(4\,z\,(2\,z\,(2\,(z - 57)\,z + 2359) - 43\,635) + 701\,145) - 887\,040) - 241\,920) - 181\,440) - 201\,600) - 264\,600) - 340\,200) - 311\,850)\right)\right)$$

07.21.03.0570.01

$${}_1\tilde{F}_1(6; -5; z) = \frac{1}{120}\, e^z\, z^6\, (z\,(z\,(z\,(z\,(z + 55) + 1100) + 9900) + 39\,600) + 55\,440)$$

07.21.03.0571.01

$${}_1\tilde{F}_1\left(6; -\frac{9}{2}; z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^z \sqrt{\pi}\, (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z + 105) + 1995) + 33\,915) + 508\,725) + 1\,322\,685)\, \operatorname{erf}\left(\sqrt{z}\right) z^{11/2} + 2\,(z\,(z\,(z\,(z\,(z\,(z\,(8\,z\,(2\,z\,(z\,(z + 52) + 972) + 16\,035) + 451\,395) + 483\,840) - 120\,960) + 80\,640) - 75\,600) + 75\,600) - 56\,700)\right)$$

07.21.03.0572.01

$${}_1\tilde{F}_1\left(6; -\frac{9}{2}; -z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, (1\,322\,685 - 2\,z\,(4\,z\,(2\,z\,(z\,(2\,z - 105) + 1995) - 33\,915) + 508\,725))\, \operatorname{erfi}\left(\sqrt{z}\right) z^{11/2} + 2\, e^z (z\,(z\,(z\,(z\,(z\,(z\,(8\,z\,(2\,z\,((z - 52)\,z + 972) - 16\,035) + 451\,395) - 483\,840) - 120\,960) - 80\,640) - 75\,600) - 75\,600) - 56\,700)\right)\right)$$

07.21.03.0573.01

$${}_1\tilde{F}_1(6; -4; z) = \frac{1}{120}\, e^z\, z^5\, (z\,(z\,(z\,(z + 50) + 900) + 7200) + 25\,200) + 30\,240)$$

07.21.03.0574.01

$${}_1\tilde{F}_1\left(6; -\frac{7}{2}; z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^z \sqrt{\pi}\, (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z + 95) + 1615) + 24\,225) + 314\,925) + 692\,835)\, \operatorname{erf}\left(\sqrt{z}\right) z^{9/2} + 2\,(z\,(z\,(z\,(z\,(z\,(4\,z\,(2\,z\,(2\,z\,(z + 47) + 1569) + 22\,745) + 274\,845) + 241\,920) - 53\,760) + 30\,240) - 21\,600) + 12\,600)\right)$$

07.21.03.0575.01

$${}_1\tilde{F}_1\left(6; -\frac{7}{2}; -z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, z^{9/2} (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z-95)+1615)-24\,225)+314\,925)-692\,835)\,\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^{z} (z\,(z\,(z\,(z\,(z\,(4\,z\,(2\,z\,(2\,(z-47)\,z+1569)-22\,745)+274\,845)-241\,920)-53\,760)-30\,240)-21\,600)-12\,600)\right)\right)$$

07.21.03.0576.01

$${}_1\tilde{F}_1(6; -3; z) = \frac{1}{120}\, e^{z} z^4 (z\,(z\,(z\,(z\,(z+45)+720)+5040)+15\,120)+15\,120)$$

07.21.03.0577.01

$${}_1\tilde{F}_1\left(6; -\frac{5}{2}; z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{z} \sqrt{\pi}\, (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z+85)+1275)+16\,575)+182\,325)+328\,185)\,\mathrm{erf}\left(\sqrt{z}\right) z^{7/2} + 2\,(z\,(z\,(z\,(z\,(16\,z\,(z\,(z\,(z+42)+617)+3855)+155\,655)+107\,520)-20\,160)+8640)-3600)\right)$$

07.21.03.0578.01

$${}_1\tilde{F}_1\left(6; -\frac{5}{2}; -z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, (328\,185 - 2\,z\,(4\,z\,(2\,z\,(z\,(2\,z-85)+1275)-16\,575)+182\,325))\,\mathrm{erfi}\left(\sqrt{z}\right) z^{7/2} + 2\,e^{z} (z\,(z\,(z\,(z\,(16\,z\,(z\,((z-42)\,z+617)-3855)+155\,655)-107\,520)-20\,160)-8640)-3600)\right)\right)$$

07.21.03.0579.01

$${}_1\tilde{F}_1(6; -2; z) = \frac{1}{120}\, e^{z} z^3 (z\,(z\,(z\,(z+40)+560)+3360)+8400)+6720)$$

07.21.03.0580.01

$${}_1\tilde{F}_1\left(6; -\frac{3}{2}; z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{z} \sqrt{\pi}\, (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z+75)+975)+10\,725)+96\,525)+135\,135)\,\mathrm{erf}\left(\sqrt{z}\right) z^{5/2} + 2\,(z\,(z\,(z\,(4\,z\,(2\,z\,(2\,z\,(z+37)+939)+9855)+79\,905)+40\,320)-5760)+1440)\right)$$

07.21.03.0581.01

$${}_1\tilde{F}_1\left(6; -\frac{3}{2}; -z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, z^{5/2} (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z-75)+975)-10\,725)+96\,525)-135\,135)\,\mathrm{erfi}\left(\sqrt{z}\right) - 2\,e^{z} (z\,(z\,(z\,(4\,z\,(2\,z\,(2\,(z-37)\,z+939)-9855)+79\,905)-40\,320)-5760)-1440)\right)\right)$$

07.21.03.0582.01

$${}_1\tilde{F}_1(6; -1; z) = \frac{1}{120}\, e^{z} z^2 (z\,(z\,(z\,(z\,(z+35)+420)+2100)+4200)+2520)$$

07.21.03.0583.01

$${}_1\tilde{F}_1\left(6; -\frac{1}{2}; z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{z} \sqrt{\pi}\, (2\,z\,(4\,z\,(2\,z\,(z\,(2\,z+65)+715)+6435)+45\,045)+45\,045)\,\mathrm{erf}\left(\sqrt{z}\right) z^{3/2} + 2\,(z\,(z\,(8\,z\,(2\,z\,(z\,(z+32)+342)+2905)+35\,595)+11\,520)-960)\right)$$

07.21.03.0584.01

$${}_1\tilde{F}_1\left(6; -\frac{1}{2}; -z\right) = \frac{1}{3840\sqrt{\pi}} \left(e^{-z} \left(\sqrt{\pi}\, (45\,045 - 2\,z\,(4\,z\,(2\,z\,(z\,(2\,z-65)+715)-6435)+45\,045))\,\mathrm{erfi}\left(\sqrt{z}\right) z^{3/2} + 2\,e^{z} (z\,(z\,(8\,z\,(2\,z\,((z-32)\,z+342)-2905)+35\,595)-11\,520)-960)\right)\right)$$

07.21.03.0585.01

$${}_1\tilde{F}_1(6;0;z) = \frac{1}{120} e^z z (z (z (z (z (z+30)+300)+1200)+1800)+720)$$

07.21.03.0586.01

$${}_1\tilde{F}_1\left(6;\frac{1}{2};z\right) = \frac{1}{3840\sqrt{\pi}} \Big(2 z (4 z (2 z (2 z (z+27)+469)+3045)+12\,645)+ e^z \sqrt{\pi} \sqrt{z} (2 z (4 z (2 z (z (2 z+55)+495)+3465)+17\,325)+10\,395) \operatorname{erf}\left(\sqrt{z}\right)+3840\Big)$$

07.21.03.0587.01

$${}_1\tilde{F}_1\left(6;\frac{1}{2};-z\right) = \frac{1}{3840\sqrt{\pi}} \Big(e^{-z} \Big(\sqrt{\pi} \sqrt{z} (2 z (4 z (2 z (z (2 z-55)+495)-3465)+17\,325)-10\,395) \operatorname{erfi}\left(\sqrt{z}\right)- 2 e^z (z (4 z (2 z (2 (z-27) z+469)-3045)+12\,645)-1920)\Big)\Big)$$

07.21.03.0588.01

$${}_1\tilde{F}_1(6;1;z) = \frac{1}{120} e^z (z (z (z+10)+20) (z (z+15)+30)+120)$$

07.21.03.0589.01

$${}_1\tilde{F}_1\left(6;\frac{3}{2};z\right) = \frac{1}{3840\sqrt{\pi}\sqrt{z}} \Big(2\sqrt{z} (16 z (z (z (z+22)+147)+330)+2895)+e^z \sqrt{\pi} (2 z (4 z (2 z (z (2 z+45)+315)+1575)+4725)+945) \operatorname{erf}\left(\sqrt{z}\right)\Big)$$

07.21.03.0590.01

$${}_1\tilde{F}_1\left(6;\frac{3}{2};-z\right) = \frac{1}{3840\sqrt{\pi}\sqrt{z}} \Big(e^{-z} \Big(2 e^z \sqrt{z} (16 z (z ((z-22) z+147)-330)+2895)+ \sqrt{\pi} (945-2 z (4 z (2 z (z (2 z-45)+315)-1575)+4725)) \operatorname{erfi}\left(\sqrt{z}\right)\Big)\Big)$$

07.21.03.0591.01

$${}_1\tilde{F}_1(6;2;z) = e^z \left(\frac{z^4}{120}+\frac{z^3}{6}+z^2+2 z+1\right)$$

07.21.03.0592.01

$${}_1\tilde{F}_1\left(6;\frac{5}{2};z\right) = \frac{1}{3840\sqrt{\pi}\, z^{3/2}} \Big(2\sqrt{z} (4 z (2 z (2 z (z+17)+159)+395)+105)+e^z \sqrt{\pi} (2 z (4 z (2 z (z (2 z+35)+175)+525)+525)-105) \operatorname{erf}\left(\sqrt{z}\right)\Big)$$

07.21.03.0593.01

$${}_1\tilde{F}_1\left(6;\frac{5}{2};-z\right) = \frac{1}{3840\sqrt{\pi}\, z^{3/2}} \Big(e^{-z} \Big(\sqrt{\pi} (2 z (4 z (2 z (z (2 z-35)+175)-525)+525)+105) \operatorname{erfi}\left(\sqrt{z}\right)- 2 e^z \sqrt{z} (4 z (2 z (2 (z-17) z+159)-395)+105)\Big)\Big)$$

07.21.03.0594.01

$${}_1\tilde{F}_1(6;3;z) = \frac{1}{120} e^z (z (z (z+15)+60)+60)$$

07.21.03.0595.01

$$ {}_1\tilde{F}_1\left(6; \frac{7}{2}; z\right) = \frac{1}{3840 \sqrt{\pi}\, z^{5/2}} \left(2 \sqrt{z}\, (2 z + 1) \left(8 z^3 + 92 z^2 + 210 z - 45\right) + e^z \sqrt{\pi}\, (2 z (4 z (2 z (z + 5) (2 z + 15) + 75) - 75) + 45) \operatorname{erf}\left(\sqrt{z}\right)\right) $$

07.21.03.0596.01

$$ {}_1\tilde{F}_1\left(6; \frac{7}{2}; -z\right) = \frac{1}{3840 \sqrt{\pi}\, z^{5/2}} \left(e^{-z} \left(2 e^z \sqrt{z}\, (2 z - 1) \left(8 z^3 - 92 z^2 + 210 z + 45\right) + \sqrt{\pi}\, (2 z (4 z (75 - 2 (z - 5) z (2 z - 15)) + 75) + 45) \operatorname{erfi}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0597.01

$$ {}_1\tilde{F}_1(6; 4; z) = \frac{1}{120} e^z (z (z + 10) + 20) $$

07.21.03.0598.01

$$ {}_1\tilde{F}_1\left(6; \frac{9}{2}; z\right) = \frac{1}{3840 \sqrt{\pi}\, z^{7/2}} \left(2 \sqrt{z}\, (2 z + 3) \left(8 z^3 + 44 z^2 - 30 z + 15\right) + e^z \sqrt{\pi}\, (2 z (4 z (2 z (z (2 z + 15) + 15) - 15) + 45) - 45) \operatorname{erf}\left(\sqrt{z}\right)\right) $$

07.21.03.0599.01

$$ {}_1\tilde{F}_1\left(6; \frac{9}{2}; -z\right) = \frac{1}{3840 \sqrt{\pi}\, z^{7/2}} \left(e^{-z} \left(\sqrt{\pi}\, (2 z (4 z (2 z (z (2 z - 15) + 15) + 15) + 45) + 45) \operatorname{erfi}\left(\sqrt{z}\right) - 2 e^z \sqrt{z}\, (4 z (2 z (2 (z - 7) z + 9) + 15) + 45)\right)\right) $$

07.21.03.0600.01

$$ {}_1\tilde{F}_1(6; 5; z) = \frac{1}{120} e^z (z + 5) $$

07.21.03.0601.01

$$ {}_1\tilde{F}_1\left(6; \frac{11}{2}; z\right) = \frac{1}{3840 \sqrt{\pi}\, z^{9/2}} \left(2 \sqrt{z}\, (16 z ((z - 1) z (z + 3) + 5) - 105) + e^z \sqrt{\pi}\, (2 z (4 z (2 z (z (2 z + 5) - 5) + 15) - 75) + 105) \operatorname{erf}\left(\sqrt{z}\right)\right) $$

07.21.03.0602.01

$$ {}_1\tilde{F}_1\left(6; \frac{11}{2}; -z\right) = \frac{1}{3840 \sqrt{\pi}\, z^{9/2}} \left(e^{-z} \left(2 e^z \sqrt{z}\, (16 z ((z - 3) z (z + 1) - 5) - 105) + \sqrt{\pi}\, (2 z (4 z (2 z ((5 - 2 z) z + 5) + 15) + 75) + 105) \operatorname{erfi}\left(\sqrt{z}\right)\right)\right) $$

07.21.03.0603.01

$$ {}_1\tilde{F}_1(6; 6; z) = \frac{e^z}{120} $$

General characteristics

Domain and analyticity

${}_1\tilde{F}_1(a; b; z)$ is an analytical entire function of a, b and z which is defined in $\mathbb{C}^3$. For fixed a, b, it is an entire function of z. For fixed a, z, it is an entire function of b. For fixed b, z, it is an entire function of a. For negative integer a, ${}_1\tilde{F}_1(a; b; z)$ degenerates to a polynomial in z of order $-a$.

07.21.04.0001.01

$$(a * b * z) \longrightarrow {}_1\tilde{F}_1(a; b; z) :: (\mathbb{C} \otimes \mathbb{C} \otimes \mathbb{C}) \longrightarrow \mathbb{C}$$

Symmetries and periodicities

Mirror symmetry

07.21.04.0002.01

$${}_1\tilde{F}_1(\overline{a}; \overline{b}; \overline{z}) == \overline{{}_1\tilde{F}_1(a; b; z)}$$

Periodicity

No periodicity

Poles and essential singularities

With respect to *z*

For fixed a /; $-a \notin \mathbb{N}$, b, the function ${}_1\tilde{F}_1(a; b; z)$ has only one singular point at $z = \tilde{\infty}$. It is an essential singular point.

07.21.04.0003.01

$$\mathcal{Sing}_z\left({}_1\tilde{F}_1(a; b; z)\right) == \{\{\tilde{\infty}, \infty\}\} /; -a \notin \mathbb{N}$$

For negative integer a and fixed b the function ${}_1\tilde{F}_1(a; b; z)$ is a polynomial and has pole of order $-a$ at $z = \tilde{\infty}$.

07.21.04.0004.01

$$\mathcal{Sing}_z\left({}_1\tilde{F}_1(a; b; z)\right) == \{\{\tilde{\infty}, -a\}\} /; -a \in \mathbb{N}^+$$

With respect to *b*

For fixed a, z, the function ${}_1\tilde{F}_1(a; b; z)$ has only one singular point at $b = \tilde{\infty}$. It is an essential singular point.

07.21.04.0005.01

$$\mathcal{Sing}_b\left({}_1\tilde{F}_1(a; b; z)\right) == \{\{\tilde{\infty}, \infty\}\}$$

With respect to *a*

For fixed b, z, the function ${}_1\tilde{F}_1(a; b; z)$ has only one singular point at $a = \tilde{\infty}$. It is an essential singular point.

07.21.04.0006.01

$$\mathcal{Sing}_a\left({}_1\tilde{F}_1(a; b; z)\right) == \{\{\tilde{\infty}, \infty\}\}$$

Branch points

With respect to *z*

The function ${}_1\tilde{F}_1(a; b; z)$ does not have branch points with respect to z.

07.21.04.0007.01

$\mathcal{BP}_z\left({}_1\tilde{F}_1(a;\,b;\,z)\right) = \{\}$

With respect to *b*

The function ${}_1\tilde{F}_1(a;\,b;\,z)$ does not have branch points with respect to b.

07.21.04.0008.01

$\mathcal{BP}_b\left({}_1\tilde{F}_1(a;\,b;\,z)\right) = \{\}$

With respect to *a*

The function ${}_1\tilde{F}_1(a;\,b;\,z)$ does not have branch points with respect to a.

07.21.04.0009.01

$\mathcal{BP}_a\left({}_1\tilde{F}_1(a;\,b;\,z)\right) = \{\}$

Branch cuts

With respect to *z*

The function ${}_1\tilde{F}_1(a;\,b;\,z)$ does not have branch cuts with respect to z.

07.21.04.0010.01

$\mathcal{BC}_z\left({}_1\tilde{F}_1(a;\,b;\,z)\right) = \{\}$

With respect to *b*

The function ${}_1\tilde{F}_1(a;\,b;\,z)$ does not have branch cuts with respect to b.

07.21.04.0011.01

$\mathcal{BC}_b\left({}_1\tilde{F}_1(a;\,b;\,z)\right) = \{\}$

With respect to *a*

The function ${}_1\tilde{F}_1(a;\,b;\,z)$ does not have branch cuts with respect to a.

07.21.04.0012.01

$\mathcal{BC}_a\left({}_1\tilde{F}_1(a;\,b;\,z)\right) = \{\}$

Series representations

Generalized power series

Expansions at generic point $z = z_0$

For the function itself

07.21.06.0010.01

$${}_1\tilde{F}_1(a;\,b;\,z) \propto {}_1\tilde{F}_1(a;\,b;\,z_0) + a\,{}_1\tilde{F}_1(a+1;\,b+1;\,z_0)\,(z-z_0) + \frac{a\,(a+1)}{2}\,{}_1\tilde{F}_1(a+2;\,b+2;\,z_0)\,(z-z_0)^2 + \ldots\,/;\,(z \to z_0)$$

07.21.06.0011.01

$${}_1\tilde{F}_1(a;\,b;\,z) \propto {}_1\tilde{F}_1(a;\,b;\,z_0) + a\,{}_1\tilde{F}_1(a+1;\,b+1;\,z_0)\,(z-z_0) + \frac{a\,(a+1)}{2}\,{}_1\tilde{F}_1(a+2;\,b+2;\,z_0)\,(z-z_0)^2 + O\!\left((z-z_0)^3\right)$$

07.21.06.0012.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \sum_{k=0}^{\infty} \frac{(a)_k}{k!}\,{}_1\tilde{F}_1(a+k;\,b+k;\,z_0)\,(z-z_0)^k$$

07.21.06.0013.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \tilde{F}_{1\times 0\times 0}^{1\times 0\times 0}\!\left(\begin{matrix} a;;; \\ b;;; \end{matrix}\; z_0,\, z-z_0\right)$$

07.21.06.0014.01

$${}_1\tilde{F}_1(a;\,b;\,z) \propto {}_1\tilde{F}_1(a;\,b;\,z_0)\,(1+O(z-z_0))$$

Expansions at $z = 0$

For the function itself

General case

07.21.06.0001.02

$${}_1\tilde{F}_1(a;\,b;\,z) \propto \frac{1}{\Gamma(b)}\left(1 + \frac{a\,z}{b} + \frac{a\,(1+a)\,z^2}{2\,b\,(1+b)} + \ldots\right) /;\ (z \to 0)$$

07.21.06.0015.01

$${}_1\tilde{F}_1(a;\,b;\,z) \propto \frac{1}{\Gamma(b)}\left(1 + \frac{a\,z}{b} + \frac{a\,(1+a)\,z^2}{2\,b\,(1+b)} + O\!\left(z^3\right)\right)$$

07.21.06.0002.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \sum_{k=0}^{\infty} \frac{(a)_k\,z^k}{\Gamma(b+k)\,k!}$$

07.21.06.0003.02

$${}_1\tilde{F}_1(a;\,b;\,z) \propto \frac{1}{\Gamma(b)}\,(1+O(z))$$

07.21.06.0016.01

$${}_1\tilde{F}_1(a;\,b;\,z) = F_\infty(z,\,a,\,b)\ /;$$

$$\left(\left(F_n(z,\,a,\,b) = \sum_{k=0}^{n} \frac{(a)_k\,z^k}{\Gamma(b+k)\,k!} = {}_1\tilde{F}_1(a;\,b;\,z) - z^{n+1}\,(a)_{n+1}\,{}_2\tilde{F}_2(1,\,a+n+1;\,n+2,\,b+n+1;\,z)\right) \bigwedge n \in \mathbb{N}\right)$$

Summed form of the truncated series expansion.

Special cases

07.21.06.0017.01

$${}_1\tilde{F}_1(a;\,-n;\,z) \propto \frac{(a)_{n+1}\,z^{n+1}}{(n+1)!}\left(1 + \frac{(1+a+n)\,z}{2+n} + \frac{(1+a+n)\,(2+a+n)\,z^2}{2\,(2+n)\,(3+n)} + \ldots\right) /;\ (z \to 0) \land n \in \mathbb{N}$$

07.21.06.0018.01

$$_1\tilde{F}_1(a;\,-n;\,z) \propto \frac{(a)_{n+1}\,z^{n+1}}{(n+1)\,!}\left(1+\frac{(1+a+n)\,z}{2+n}+\frac{(1+a+n)\,(2+a+n)\,z^2}{2\,(2+n)\,(3+n)}+O\left(z^3\right)\right)\,/;\,n\in\mathbb{N}$$

07.21.06.0019.01

$$_1\tilde{F}_1(a;\,-n;\,z) \propto \frac{(a)_{n+1}\,z^{n+1}}{(n+1)\,!}\,_1F_1(a+n+1;\,n+2;\,z)\,/;\,n\in\mathbb{N}$$

07.21.06.0020.01

$$_1\tilde{F}_1(a;\,-n;\,z) \propto \frac{(a)_{n+1}\,z^{n+1}}{(n+1)\,!}\,_1F_1(a+n+1;\,n+2;\,z)\,/;\,n\in\mathbb{N}$$

07.21.06.0021.01

$$_1\tilde{F}_1(a;\,-n;\,z) \propto \frac{(a)_{n+1}\,z^{n+1}}{(n+1)\,!}\,(1+O(z))\,/;\,n\in\mathbb{N}$$

07.21.06.0022.01

$$_1\tilde{F}_1(a;\,-n;\,z) = F_\infty(z,\,a,\,n)\,/;\left(\left(F_m(z,\,a,\,n) = \frac{(a)_{n+1}\,z^{n+1}}{(n+1)\,!}\sum_{k=0}^{m}\frac{(a+n+1)_k\,z^k}{(n+2)_k\,k\,!} = z^{n+1}\,(a)_{n+1}\,_1\tilde{F}_1(a+n+1;\,n+2;\,z) - z^{m+n+2}\,(a)_{m+n+2}\,_2\tilde{F}_2(1,\,a+m+n+2;\,m+2,\,m+n+3;\,z)\right)\bigwedge m\in\mathbb{N}\right)\bigwedge n\in\mathbb{N}$$

Summed form of the truncated series expansion.

Asymptotic series expansions

07.21.06.0004.01

$$_1\tilde{F}_1(a;\,b;\,z) \propto \mathcal{A}_{\tilde{F}}\left(\begin{matrix}a;\\ b;\end{matrix}\;\{z,\,\tilde{\infty},\,\infty\}\right)\,/;\,(|z|\to\infty)$$

07.21.06.0005.01

$$_1\tilde{F}_1(a;\,b;\,z) \propto \mathcal{A}_{\tilde{F}}^{(\text{power})}\left(\begin{matrix}a;\\ b;\end{matrix}\;\{z,\,\tilde{\infty},\,\infty\}\right)+\mathcal{A}_{\tilde{F}}^{(\text{exp})}\left(\begin{matrix}a;\\ b;\end{matrix}\;\{z,\,\tilde{\infty},\,\infty\}\right)\,/;\,(|z|\to\infty)$$

07.21.06.0006.01

$$_1\tilde{F}_1(a;\,b;\,z) \propto \frac{e^z\,z^{a-b}}{\Gamma(a)}\left(1+\frac{(a-1)\,(a-b)}{z}+\frac{(a-2)\,(a-1)\,(a-b-1)\,(a-b)}{2\,z^2}+\ldots\right)+\frac{(-z)^{-a}}{\Gamma(b-a)}\left(1-\frac{a\,(a-b+1)}{z}+\frac{a\,(a+1)\,(a-b+1)\,(a-b+2)}{2\,z^2}+\ldots\right)\,/;\,(|z|\to\infty)$$

07.21.06.0023.01

$$_1\tilde{F}_1(a;\,b;\,z) \propto \frac{(-z)^{-a}}{\Gamma(b-a)}\left(\sum_{k=0}^{n}\frac{(-1)^k\,(a)_k\,(a-b+1)_k\,z^{-k}}{k\,!}+O\left(z^{-n-1}\right)\right)+\frac{e^z\,z^{a-b}}{\Gamma(a)}\left(\sum_{k=0}^{n}\frac{(b-a)_k\,(1-a)_k\,z^{-k}}{k\,!}+O\left(z^{-n-1}\right)\right)\,/;\,(|z|\to\infty)$$

07.21.06.0007.01

$$_1\tilde{F}_1(a;\,b;\,z) \propto \frac{1}{\Gamma(b-a)}\,(-z)^{-a}\,_2F_0\left(a,\,a-b+1;\,;\,-\frac{1}{z}\right)+\frac{1}{\Gamma(a)}\,e^z\,z^{a-b}\,_2F_0\left(b-a,\,1-a;\,;\,\frac{1}{z}\right)\,/;\,(|z|\to\infty)$$

07.21.06.0008.01

$$_1\tilde{F}_1(a;\,b;\,z) \propto \frac{1}{\Gamma(b-a)}\,(-z)^{-a}\left(1+O\left(\frac{1}{z}\right)\right)+\frac{1}{\Gamma(a)}\,e^z\,z^{a-b}\left(1+O\left(\frac{1}{z}\right)\right)\,/;\,(|z|\to\infty)$$

Residue representations

07.21.06.0009.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \frac{1}{\Gamma(a)} \sum_{j=0}^{\infty} \operatorname{res}_s\!\left(\frac{\Gamma(a-s)\,(-z)^{-s}}{\Gamma(b-s)}\, \Gamma(s) \right)(-j) $$

Limit representations

07.21.09.0001.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \lim_{p\to\infty} {}_2\tilde{F}_1\!\left(a,\,p;\,b;\,\frac{z}{p}\right) $$

Continued fraction representations

07.21.10.0001.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \frac{1}{\Gamma(b)} \left(1 + (a\,z/b) \middle/ \left(1 + -\frac{(1+a)\,z}{2\,(1+b)} \middle/ \left(1 + \frac{(1+a)\,z}{2\,(1+b)} + \cfrac{-\frac{(2+a)\,z}{3\,(2+b)}}{1 + \frac{(2+a)\,z}{3\,(2+b)} + \cfrac{-\frac{(3+a)\,z}{4\,(3+b)}}{1 + \frac{(3+a)\,z}{4\,(3+b)} + \cfrac{-\frac{(4+a)\,z}{5\,(4+b)}}{1 + \frac{(4+a)\,z}{5\,(4+b)} + \ldots}}} \right)\right)\right) $$

07.21.10.0002.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \frac{1}{\Gamma(b)} \left(1 + \frac{a\,z}{b\left(1 + \text{ContinueFraction}\left(\left\{-\frac{(a+k)\,z}{(k+1)\,(b+k)},\, \frac{(a+k)\,z}{(k+1)\,(b+k)} + 1\right\},\, \{k,\,1,\,\infty\}\right)\right)} \right) $$

Differential equations

Ordinary linear differential equations and wronskians

For the direct function itself

07.21.13.0003.01

$$ z\,w''(z) + (b-z)\,w'(z) - a\,w(z) = 0 \;/;\; w(z) = c_1\,{}_1\tilde{F}_1(a;\,b;\,z) + c_2\,(U(a,\,b,\,z) + e^z\,U(b-a,\,b,\,-z)) $$

07.21.13.0004.01

$$ W_z\!\left({}_1\tilde{F}_1(a;\,b;\,z),\, U(a,\,b,\,z) + e^z\,U(b-a,\,b,\,-z)\right) = \frac{e^z\,(-z)^{-b}}{\Gamma(b-a)} - \frac{e^z\,z^{-b}}{\Gamma(a)} $$

07.21.13.0005.01

$$ z\,w''(z) + (b-z)\,w'(z) - a\,w(z) = 0 \;/;\; w(z) = c_1\,{}_1\tilde{F}_1(a;\,b;\,z) + c_2\,(U(a,\,b,\,z) + e^z\,U(b-a,\,b,\,-z)) $$

07.21.13.0006.01

$$W_z\left({}_1\tilde{F}_1(a;\,b;\,z),\,U(a,\,b,\,z)+e^z\,U(b-a,\,b,\,-z)\right)=\frac{e^z\,(-z)^{-b}}{\Gamma(b-a)}-\frac{e^z\,z^{-b}}{\Gamma(a)}$$

07.21.13.0001.01

$$z\,w''(z)+(b-z)\,w'(z)-a\,w(z)=0\,/;\,w(z)=c_1\,{}_1\tilde{F}_1(a;\,b;\,z)+c_2\,U(a,\,b,\,z)\,/;\,-a\notin\mathbb{N}$$

07.21.13.0002.01

$$W_z\left({}_1\tilde{F}_1(a;\,b;\,z),\,U(a,\,b,\,z)\right)=-\frac{e^z\,z^{-b}}{\Gamma(a)}$$

07.21.13.0007.01

$$z\,w''(z)+(b-z)\,w'(z)-a\,w(z)=0\,/;\,w(z)=c_1\,{}_1\tilde{F}_1(a;\,b;\,z)+c_2\,z^{1-b}\,{}_1\tilde{F}_1(a-b+1;\,2-b;\,z)\,/;\,b\notin\mathbb{Z}$$

07.21.13.0008.01

$$W_z\left({}_1\tilde{F}_1(a;\,b;\,z),\,z^{1-b}\,{}_1\tilde{F}_1(a-b+1;\,2-b;\,z)\right)=\frac{\sin(b\,\pi)}{\pi}\,e^z\,z^{-b}$$

07.21.13.0009.01

$$w''(z)+\left(\frac{b\,g'(z)}{g(z)}-g'(z)-\frac{g''(z)}{g'(z)}\right)w'(z)-\frac{a\,g'(z)^2}{g(z)}\,w(z)=0\,/;\,w(z)=c_1\,{}_1\tilde{F}_1(a;\,b;\,g(z))+c_2\,U(a,\,b,\,g(z))$$

07.21.13.0010.01

$$W_z\left({}_1\tilde{F}_1(a;\,b;\,g(z)),\,U(a,\,b,\,g(z))\right)=-\frac{g'(z)\,e^{g(z)}\,g(z)^{-b}}{\Gamma(a)}$$

07.21.13.0011.01

$$h(z)^2\,w''(z)+h(z)^2\left(\frac{b\,g'(z)}{g(z)}-g'(z)-\frac{2\,h'(z)}{h(z)}-\frac{g''(z)}{g'(z)}\right)w'(z)+\left(2\,h'(z)^2+h(z)\left(g'(z)\,h'(z)+\frac{g''(z)\,h'(z)}{g'(z)}-h''(z)\right)-\frac{h(z)\,g'(z)\,(a\,h(z)\,g'(z)+b\,h'(z))}{g(z)}\right)w(z)=0\,/;$$
$$w(z)=c_1\,h(z)\,{}_1\tilde{F}_1(a;\,b;\,g(z))+c_2\,h(z)\,U(a,\,b,\,g(z))$$

07.21.13.0012.01

$$W_z\left(h(z)\,{}_1\tilde{F}_1(a;\,b;\,g(z)),\,h(z)\,U(a,\,b,\,g(z))\right)=-\frac{h(z)^2\,g'(z)\,e^{g(z)}\,g(z)^{-b}}{\Gamma(a)}$$

07.21.13.0013.01

$$w''(z)\,z^2+(-2\,s+r\,(-d\,z^r+b-1)+1)\,z\,w'(z)+(d\,r\,(s-a\,r)\,z^r+s\,(-b\,r+r+s))\,w(z)=0\,/;$$
$$w(z)=c_1\,z^s\,{}_1\tilde{F}_1(a;\,b;\,d\,z^r)+c_2\,z^s\,U(a,\,b,\,d\,z^r)$$

07.21.13.0014.01

$$W_z\left(z^s\,{}_1\tilde{F}_1(a;\,b;\,d\,z^r),\,z^s\,U(a,\,b,\,d\,z^r)\right)=-\frac{d\,e^{d\,z^r}\,r\,z^{r+2\,s-1}\,(d\,z^r)^{-b}}{\Gamma(a)}$$

07.21.13.0015.01

$$w''(z)-((d\,r^z-b+1)\log(r)+2\log(s))\,w'(z)+\left(-a\,d\log^2(r)\,r^z+\log^2(s)+(d\,r^z-b+1)\log(r)\log(s)\right)w(z)=0\,/;$$
$$w(z)=c_1\,s^z\,{}_1\tilde{F}_1(a;\,b;\,d\,r^z)+c_2\,s^z\,U(a,\,b,\,d\,r^z)$$

07.21.13.0016.01

$$W_z\left(s^z\,{}_1\tilde{F}_1(a;\,b;\,d\,r^z),\,s^z\,U(a,\,b,\,d\,r^z)\right)=-\frac{d\,e^{d\,r^z}\,r^z\,(d\,r^z)^{-b}\,s^{2\,z}\log(r)}{\Gamma(a)}$$

Transformations

Transformations and argument simplifications

Argument involving basic arithmetic operations

07.21.16.0001.01

$$ {}_1\tilde{F}_1(b-a;b;z) = e^z\, {}_1\tilde{F}_1(a;b;-z) $$

Products, sums, and powers of the direct function

Products of the direct function

07.21.16.0002.01

$$ {}_1\tilde{F}_1(a;b;z)\, {}_1\tilde{F}_1(a;b;-z) = 2^{1-b}\sqrt{\pi}\, {}_2\tilde{F}_3\left(a, b-a; \frac{b+1}{2}, \frac{b}{2}, b; \frac{z^2}{4}\right) $$

Sums of the direct function

07.21.16.0003.01

$$ {}_1\tilde{F}_1(a;b;z) - \frac{z^{1-b}\,\Gamma(a-b+1)}{\Gamma(a)}\, {}_1\tilde{F}_1(a-b+1;2-b;z) = \frac{\Gamma(a-b+1)\sin(b\pi)}{\pi} U(a,b,z) $$

Identities

Recurrence identities

Consecutive neighbors

07.21.17.0001.01

$$ {}_1\tilde{F}_1(a;b;z) = \frac{2a-b+z+2}{a-b+1}\, {}_1\tilde{F}_1(a+1;b;z) - \frac{a+1}{a-b+1}\, {}_1\tilde{F}_1(a+2;b;z) $$

07.21.17.0002.01

$$ {}_1\tilde{F}_1(a;b;z) = \frac{1-a+b}{a-1}\, {}_1\tilde{F}_1(a-2;b;z) + \frac{2a-b+z-2}{a-1}\, {}_1\tilde{F}_1(a-1;b;z) $$

07.21.17.0003.01

$$ {}_1\tilde{F}_1(a;b;z) = (b+z)\, {}_1\tilde{F}_1(a;b+1;z) + (a-b-1)\, z\, {}_1\tilde{F}_1(a;b+2;z) $$

07.21.17.0004.01

$$ {}_1\tilde{F}_1(a;b;z) = \frac{2-b-z}{(a-b+1)\,z}\, {}_1\tilde{F}_1(a;b-1;z) + \frac{1}{(a-b+1)\,z}\, {}_1\tilde{F}_1(a;b-2;z) $$

Distant neighbors

07.21.17.0015.01

$$ {}_1\tilde{F}_1(a;b;z) = C_n(a,b,z)\, {}_1\tilde{F}_1(a+n;b;z) - \frac{a+n}{a-b+n} C_{n-1}(a,b,z)\, {}_1\tilde{F}_1(a+n+1;b;z) \;/;\; C_0(a,b,z) = 1 \bigwedge C_1(a,b,z) = \frac{2a-b+z+2}{a-b+1} \bigwedge C_n(a,b,z) = \frac{2a-b+2n+z}{a-b+n} C_{n-1}(a,b,z) - \frac{a+n-1}{a-b+n-1} C_{n-2}(a,b,z) \bigwedge n \in \mathbb{N}^+ $$

07.21.17.0016.01

$$ {}_1\tilde{F}_1(a;b;z) = \frac{n-a+b}{a-n} C_{n-1}(a,b,z)\, {}_1\tilde{F}_1(a-n-1;b;z) + C_n(a,b,z)\, {}_1\tilde{F}_1(a-n;b;z) \;/;\; C_0(a,b,z) = 1 \bigwedge C_1(a,b,z) = \frac{2a-b+z-2}{a-1} \bigwedge C_n(a,b,z) = \frac{2n-2a+b-z}{n-a} C_{n-1}(a,b,z) - \frac{n-a+b-1}{n-a-1} C_{n-2}(a,b,z) \bigwedge n \in \mathbb{N}^+ $$

07.21.17.0017.01

$$ {}_1\tilde{F}_1(a;b;z) = C_n(a,b,z)\, {}_1\tilde{F}_1(a;b+n;z) + (a-b-n)\, z\, C_{n-1}(a,b,z)\, {}_1\tilde{F}_1(a;b+n+1;z) \;/;\; C_0(a,b,z) = 1 \land C_1(a,b,z) = b+z \land C_n(a,b,z) = (b+n+z-1)\, C_{n-1}(a,b,z) - (n-a+b-1)\, z\, C_{n-2}(a,b,z) \land n \in \mathbb{N}^+ $$

07.21.17.0018.01

$$ {}_1\tilde{F}_1(a;b;z) = \frac{1}{(a-b+n)\, z} C_{n-1}(a,b,z)\, {}_1\tilde{F}_1(a;b-n-1;z) + C_n(a,b,z)\, {}_1\tilde{F}_1(a;b-n;z) \;/;\; C_0(a,b,z) = 1 \bigwedge C_1(a,b,z) = \frac{b+z-2}{(b-a-1)\, z} \bigwedge C_n(a,b,z) = \frac{n-b-z+1}{(a-b+n)\, z} C_{n-1}(a,b,z) + \frac{1}{(a-b+n-1)\, z} C_{n-2}(a,b,z) \bigwedge n \in \mathbb{N}^+ $$

Functional identities

Relations of special kind

07.21.17.0005.01

$$ {}_1\tilde{F}_1(a;-n;z) = z^{n+1}\, (a)_{n+1}\, {}_1\tilde{F}_1(a+n+1;n+2;z) \;/;\; n \in \mathbb{N} $$

Major general cases

07.21.17.0006.01

$$ {}_1\tilde{F}_1(a;b;z) = e^z\, {}_1\tilde{F}_1(b-a;b;-z) $$

Eight relations between contiguous functions:

07.21.17.0007.01

$$ (b-2a-z)\, {}_1\tilde{F}_1(a;b;z) + (a-b)\, {}_1\tilde{F}_1(a-1;b;z) + a\, {}_1\tilde{F}_1(a+1;b;z) = 0 $$

07.21.17.0008.01

$$ (b+z-1)\, {}_1\tilde{F}_1(a;b;z) - {}_1\tilde{F}_1(a;b-1;z) + (a-b)\, z\, {}_1\tilde{F}_1(a;b+1;z) = 0 $$

07.21.17.0009.01

$$ (a+z-1)\, {}_1\tilde{F}_1(a;b;z) + (b-a)\, {}_1\tilde{F}_1(a-1;b;z) - {}_1\tilde{F}_1(a;b-1;z) = 0 $$

07.21.17.0010.01

$$ {}_1\tilde{F}_1(a;b;z) - {}_1\tilde{F}_1(a-1;b;z) - z\, {}_1\tilde{F}_1(a;b+1;z) = 0 $$

07.21.17.0011.01

$$ (a-b+1)\, {}_1\tilde{F}_1(a;b;z) - a\, {}_1\tilde{F}_1(a+1;b;z) + {}_1\tilde{F}_1(a;b-1;z) = 0 $$

07.21.17.0012.01

$$ (a+z)\, {}_1\tilde{F}_1(a;b;z) - a\, {}_1\tilde{F}_1(a+1;b;z) - (b-a)\, z\, {}_1\tilde{F}_1(a;b+1;z) = 0 $$

07.21.17.0013.01

$$ (a-b+1)(b-a)\, {}_1\tilde{F}_1(a-1;b;z) + a\, (a+z-1)\, {}_1\tilde{F}_1(a+1;b;z) + (-2a+b-z)\, {}_1\tilde{F}_1(a;b-1;z) = 0 $$

07.21.17.0014.01

$$ a\, (b+z-1)\, {}_1\tilde{F}_1(a+1;b;z) - (a+z)\, {}_1\tilde{F}_1(a;b-1;z) + (a-b)(a-b+1)\, z\, {}_1\tilde{F}_1(a;b+1;z) = 0 $$

Differentiation

Low-order differentiation

With respect to *a*

07.21.20.0001.01

$$ {}_1\tilde{F}_1^{(1,0,0)}(a;b;z) = \sum_{k=0}^{\infty} \frac{(a)_k\,\psi(a+k)\,z^k}{k!\,\Gamma(b+k)} - \psi(a)\,{}_1\tilde{F}_1(a;b;z) $$

07.21.20.0002.01

$$ {}_1\tilde{F}_1^{(1,0,0)}(a;b;z) = z\,\Gamma(a+1)\,\tilde{F}_{2\times0\times1}^{1\times1\times2}\left(\begin{matrix} a+1;\,1;\,1,\,a; \\ 2,\,b+1;;\,a+1; \end{matrix}\; z,\,z\right) $$

With respect to *b*

07.21.20.0003.01

$$ {}_1\tilde{F}_1^{(0,1,0)}(a;b;z) = -\sum_{k=0}^{\infty} \frac{\left((a)_k\,\psi(b+k)\right)z^k}{k!\,\Gamma(b+k)} $$

07.21.20.0004.01

$$ {}_1\tilde{F}_1^{(0,1,0)}(a;b;z) = a\,(-z)\,\Gamma(b)\,\tilde{F}_{2\times0\times1}^{1\times1\times2}\left(\begin{matrix} a+1;\,1;\,1,\,b; \\ 2,\,b+1;;\,b+1; \end{matrix}\; z,\,z\right) - \psi(b)\,{}_1\tilde{F}_1(a;b;z) $$

With respect to element of parameters ||| With respect to element of parameters

07.21.20.0012.01

$$ \frac{\partial\,{}_1\tilde{F}_1(a;a+1;z)}{\partial a} = n!\,z\left(\Gamma(a+1)\,{}_2\tilde{F}_2(a+1,a+1;a+2,a+2;z) + {}_1\tilde{F}_1(a+1;a+2;z)\,\psi(a+1)\right) - \frac{\psi(a+1)\,e^z}{\Gamma(a+1)} $$

07.21.20.0013.01

$$ \frac{\partial\,{}_1\tilde{F}_1(a+1;a;z)}{\partial a} = -\frac{e^z\,(z+a\,(a+z)\,\psi(a))}{a^2\,\Gamma(a)} $$

With respect to *z*

07.21.20.0005.01

$$ \frac{\partial\,{}_1\tilde{F}_1(a;b;z)}{\partial z} = a\,{}_1\tilde{F}_1(a+1;b+1;z) $$

07.21.20.0006.01

$$ \frac{\partial^2\,{}_1\tilde{F}_1(a;b;z)}{\partial z^2} = a\,(a+1)\,{}_1\tilde{F}_1(a+2;b+2;z) $$

Symbolic differentiation

With respect to *a*

07.21.20.0007.02

$$ {}_1\tilde{F}_1^{(n,0,0)}(a;b;z) = \sum_{k=0}^{\infty} \frac{1}{k!\,\Gamma(b+k)}\,\frac{\partial^n (a)_k}{\partial a^n}\,z^k \,/;\, n\in\mathbb{N} $$

With respect to *b*

07.21.20.0008.02

$$ {}_1\tilde{F}_1^{(0,n,0)}(a;b;z) = \sum_{k=0}^{\infty} \frac{(a)_k}{k!} \frac{\partial^n \frac{1}{\Gamma(b+k)}}{\partial b^n} z^k /; n \in \mathbb{N} $$

With respect to element of parameters ||| With respect to element of parameters

07.21.20.0014.02

$$ \frac{\partial^n {}_1\tilde{F}_1(a;a+1;z)}{\partial a^n} = \frac{\partial^n \frac{1}{\Gamma(a+1)}}{\partial a^n} e^z - n!\, z \sum_{k=0}^{n} \frac{(-1)^k \Gamma(a+1)^{k+1}}{(n-k)!} \frac{\partial^{n-k} \frac{1}{\Gamma(a+1)}}{\partial a^{n-k}} {}_{k+1}\tilde{F}_{k+1}(a+1, \ldots, a+1; a+2, \ldots, a+2; z) /; n \in \mathbb{N} $$

07.21.20.0015.02

$$ \frac{\partial^n {}_1\tilde{F}_1(a+1;a;z)}{\partial a^n} = e^z \left(\frac{\partial^n \frac{1}{\Gamma(a)}}{\partial a^n} + z \frac{\partial^n \frac{1}{\Gamma(a+1)}}{\partial a^n} \right) /; n \in \mathbb{N} $$

With respect to *z*

07.21.20.0009.02

$$ \frac{\partial^n {}_1\tilde{F}_1(a;b;z)}{\partial z^n} = (a)_n \, {}_1\tilde{F}_1(a+n; b+n; z) /; n \in \mathbb{N} $$

07.21.20.0010.02

$$ \frac{\partial^n {}_1\tilde{F}_1(a;b;z)}{\partial z^n} = z^{-n} \, {}_2\tilde{F}_2(1, a; 1-n, b; z) /; n \in \mathbb{N} $$

Fractional integro-differentiation

With respect to *z*

07.21.20.0011.01

$$ \frac{\partial^\alpha {}_1\tilde{F}_1(a;b;z)}{\partial z^\alpha} = z^{-\alpha} \, {}_2\tilde{F}_2(1, a; 1-\alpha, b; z) $$

Integration

Indefinite integration

Involving only one direct function

07.21.21.0001.01

$$ \int {}_1\tilde{F}_1(a;b;z)\, dz = \frac{1}{a-1} \, {}_1\tilde{F}_1(a-1; b-1; z) $$

Involving one direct function and elementary functions

Involving power function

07.21.21.0002.01

$$ \int z^{\alpha-1} \, {}_1\tilde{F}_1(a;b;z)\, dz = z^\alpha \, \Gamma(\alpha) \, {}_2\tilde{F}_2(a, \alpha; b, \alpha+1; z) $$

Definite integration

For the direct function itself

07.21.21.0003.01

$$\int_0^\infty t^{\alpha-1}\, {}_1\tilde{F}_1(a;\, b;\, -t)\, dt = \frac{\Gamma(a-\alpha)\,\Gamma(\alpha)}{\Gamma(a)\,\Gamma(b-\alpha)} \;/;\; 0 < \mathrm{Re}(\alpha) < \mathrm{Re}(a)$$

Involving the direct function

07.21.21.0004.01

$$\int_0^\infty t^{\alpha-1}\, e^{-c\,t}\, {}_1\tilde{F}_1(a;\, b;\, -t)\, dt = c^{-\alpha}\,\Gamma(\alpha)\, {}_2\tilde{F}_1\!\left(a,\, \alpha;\, b;\, -\frac{1}{c}\right) /;\; \mathrm{Re}(\alpha) > 0 \land \mathrm{Re}(c) > 0$$

Integral transforms

Laplace transforms

07.21.22.0001.01

$$\mathcal{L}_t\!\left[{}_1\tilde{F}_1(a;\, b;\, t)\right](z) = \frac{1}{z}\, {}_2\tilde{F}_1\!\left(1,\, a;\, b;\, -\frac{1}{z}\right) /;\; \mathrm{Re}(z) > 0$$

Operations

Limit operation

07.21.25.0001.01

$$\lim_{z\to\infty} z^a\, {}_1\tilde{F}_1(a;\, a+1;\, -z) = 1$$

07.21.25.0002.01

$$\lim_{a\to\infty} {}_1\tilde{F}_1\!\left(a;\, b;\, \frac{z}{a}\right) = z^{\frac{1-b}{2}}\, I_{b-1}\!\left(2\sqrt{z}\right)$$

Representations through more general functions

Through hypergeometric functions

Involving ${}_pF_q$

07.21.26.0001.01

$${}_1\tilde{F}_1(a;\, b;\, z) = \frac{1}{\Gamma(b)}\, {}_1F_1(a;\, b;\, z) \;/;\; -b \notin \mathbb{N}$$

07.21.26.0002.01

$${}_1\tilde{F}_1(a;\, b;\, z)\, {}_1\tilde{F}_1(a;\, b;\, -z) = 2^{1-b}\sqrt{\pi}\, {}_2\tilde{F}_3\!\left(a,\, b-a;\, \frac{b+1}{2},\, \frac{b}{2},\, b;\, \frac{z^2}{4}\right)$$

Involving ${}_p\tilde{F}_q$

07.21.26.0003.01

$${}_1\tilde{F}_1(a;\, b;\, z) = {}_p\tilde{F}_q(a_1,\, \ldots,\, a_p;\, b_1,\, \ldots,\, b_q;\, z) \;/;\; p = 1 \bigwedge q = 1 \bigwedge a_1 = a \bigwedge b_1 = b$$

Through Meijer *G*

Classical cases for the direct function itself

07.21.26.0004.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \frac{\pi}{\Gamma(a)}\, G_{2,3}^{1,1}\!\left(z \,\middle|\, \begin{matrix} 1-a,\, \frac{1}{2} \\ 0,\, 1-b,\, \frac{1}{2} \end{matrix}\right) $$

07.21.26.0005.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \frac{1}{\Gamma(a)}\, G_{1,2}^{1,1}\!\left(-z \,\middle|\, \begin{matrix} 1-a \\ 0,\, 1-b \end{matrix}\right) $$

07.21.26.0036.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \frac{1}{\Gamma(b)} - \frac{\pi}{\Gamma(a)}\, G_{3,4}^{1,2}\!\left(z \,\middle|\, \begin{matrix} 1,\, 1-a,\, \frac{1}{2} \\ 1,\, 0,\, 1-b,\, \frac{1}{2} \end{matrix}\right) $$

07.21.26.0006.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) = \frac{1}{\Gamma(b)} - \frac{1}{\Gamma(a)}\, G_{2,3}^{1,2}\!\left(-z \,\middle|\, \begin{matrix} 1,\, 1-a \\ 1,\, 0,\, 1-b \end{matrix}\right) $$

07.21.26.0007.01

$$ {}_1\tilde{F}_1(a;\,b;\,-z) + {}_1\tilde{F}_1(a;\,b;\,z) = \frac{2^{a-b+1}\sqrt{\pi}}{\Gamma(a)}\, G_{2,4}^{1,2}\!\left(-\frac{z^2}{4} \,\middle|\, \begin{matrix} \frac{1-a}{2},\, 1-\frac{a}{2} \\ 0,\, \frac{1}{2},\, \frac{1-b}{2},\, 1-\frac{b}{2} \end{matrix}\right) $$

07.21.26.0008.01

$$ {}_1\tilde{F}_1(a;\,b;\,-z) + {}_1\tilde{F}_1(a;\,b;\,z) = \frac{2^{a-b+1}\pi^{3/2}}{\Gamma(a)}\, G_{3,5}^{1,2}\!\left(\frac{z^2}{4} \,\middle|\, \begin{matrix} \frac{1-a}{2},\, 1-\frac{a}{2},\, \frac{1}{2} \\ 0,\, \frac{1}{2},\, \frac{1-b}{2},\, 1-\frac{b}{2},\, \frac{1}{2} \end{matrix}\right) $$

07.21.26.0009.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) - {}_1\tilde{F}_1(a;\,b;\,-z) = \frac{2^{a-b}\sqrt{\pi}\,z}{\Gamma(a)}\, G_{2,4}^{1,2}\!\left(-\frac{z^2}{4} \,\middle|\, \begin{matrix} -\frac{a}{2},\, \frac{1-a}{2} \\ 0,\, -\frac{1}{2},\, -\frac{b}{2},\, \frac{1-b}{2} \end{matrix}\right) $$

07.21.26.0010.01

$$ {}_1\tilde{F}_1(a;\,b;\,z) - {}_1\tilde{F}_1(a;\,b;\,-z) = \frac{2^{a-b}\pi^{3/2}\,z}{\Gamma(a)}\, G_{3,5}^{1,2}\!\left(\frac{z^2}{4} \,\middle|\, \begin{matrix} -\frac{a}{2},\, \frac{1-a}{2},\, \frac{1}{2} \\ 0,\, -\frac{1}{2},\, \frac{1}{2},\, -\frac{b}{2},\, \frac{1-b}{2} \end{matrix}\right) $$

07.21.26.0031.01

$$ {}_1\tilde{F}_1\!\left(a;\,b;\,-\sqrt{z}\right) + {}_1\tilde{F}_1\!\left(a;\,b;\,\sqrt{z}\right) = \frac{2^{a-b+1}\pi^{3/2}}{\Gamma(a)}\, G_{3,5}^{1,2}\!\left(\frac{z}{4} \,\middle|\, \begin{matrix} \frac{1-a}{2},\, 1-\frac{a}{2},\, \frac{1}{2} \\ 0,\, \frac{1}{2},\, \frac{1-b}{2},\, 1-\frac{b}{2},\, \frac{1}{2} \end{matrix}\right) $$

07.21.26.0032.01

$$ {}_1\tilde{F}_1\!\left(a;\,b;\,\sqrt{z}\right) - {}_1\tilde{F}_1\!\left(a;\,b;\,-\sqrt{z}\right) = \frac{2^{a-b+1}\pi^{3/2}}{\Gamma(a)}\, G_{3,5}^{1,2}\!\left(\frac{z}{4} \,\middle|\, \begin{matrix} \frac{1-a}{2},\, \frac{2-a}{2},\, 1 \\ \frac{1}{2},\, 0,\, 1,\, \frac{1-b}{2},\, \frac{2-b}{2} \end{matrix}\right) $$

Classical cases involving exp

07.21.26.0011.01

$$ e^{-z}\, {}_1\tilde{F}_1(a;\,b;\,z) = \frac{1}{\Gamma(b-a)}\, G_{1,2}^{1,1}\!\left(z \,\middle|\, \begin{matrix} a-b+1 \\ 0,\, 1-b \end{matrix}\right) $$

Classical cases involving exp and cosh

07.21.26.0037.01

$$e^{-\frac{z}{2}} \cosh\left(\frac{z}{2}\right) {}_1\tilde{F}_1(a; b; z) = \frac{\pi}{2\,\Gamma(a)} G_{2,3}^{1,1}\left(z \,\middle|\, \begin{matrix} 1-a, \frac{1}{2} \\ 0, 1-b, \frac{1}{2} \end{matrix}\right) + \frac{1}{2\,\Gamma(b-a)} G_{1,2}^{1,1}\left(z \,\middle|\, \begin{matrix} a-b+1 \\ 0, 1-b \end{matrix}\right)$$

Classical cases involving exp and sinh

07.21.26.0038.01

$$e^{-\frac{z}{2}} \sinh\left(\frac{z}{2}\right) {}_1\tilde{F}_1(a; b; z) = \frac{\pi}{2\,\Gamma(a)} G_{2,3}^{1,1}\left(z \,\middle|\, \begin{matrix} 1-a, \frac{1}{2} \\ 0, 1-b, \frac{1}{2} \end{matrix}\right) - \frac{1}{2\,\Gamma(b-a)} G_{1,2}^{1,1}\left(z \,\middle|\, \begin{matrix} a-b+1 \\ 0, 1-b \end{matrix}\right)$$

Classical cases for products of ${}_1\tilde{F}_1$

07.21.26.0012.01

$${}_1\tilde{F}_1(a; b; z)\, {}_1\tilde{F}_1(a; b; -z) = \frac{2^{1-b} \sqrt{\pi}}{\Gamma(a)\,\Gamma(b-a)} G_{2,4}^{1,2}\left(-\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-a, a-b+1 \\ 0, \frac{1-b}{2}, 1-\frac{b}{2}, 1-b \end{matrix}\right)$$

07.21.26.0013.01

$${}_1\tilde{F}_1(a; b; z)\, {}_1\tilde{F}_1(a; b; -z) = \frac{2^{1-b} \pi^{3/2}}{\Gamma(a)\,\Gamma(b-a)} G_{3,5}^{1,2}\left(\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-a, a-b+1, \frac{1}{2} \\ 0, \frac{1-b}{2}, 1-\frac{b}{2}, 1-b, \frac{1}{2} \end{matrix}\right)$$

07.21.26.0014.01

$${}_1\tilde{F}_1(a; 2a; z)\, {}_1\tilde{F}_1(c; 2c; -z) = \frac{2^{1-a-c} \sqrt{\pi}}{\Gamma(a)\,\Gamma(c)} G_{2,4}^{1,2}\left(-\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-\frac{a+c}{2}, \frac{1-a-c}{2} \\ 0, -a-c+1, \frac{1}{2}-c, \frac{1}{2}-a \end{matrix}\right)$$

07.21.26.0015.01

$${}_1\tilde{F}_1(a; 2a; z)\, {}_1\tilde{F}_1(c; 2c; -z) = \frac{2^{1-a-c} \pi^{3/2}}{\Gamma(a)\,\Gamma(c)} G_{3,5}^{1,2}\left(\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-\frac{a+c}{2}, \frac{1-a-c}{2}, \frac{1}{2} \\ 0, 1-a-c, \frac{1}{2}-c, \frac{1}{2}-a, \frac{1}{2} \end{matrix}\right)$$

Classical cases involving exp and products of ${}_1\tilde{F}_1$

07.21.26.0016.01

$$e^{-z}\, {}_1\tilde{F}_1(a; b; z)\, {}_1\tilde{F}_1(b-a; b; z) = \frac{2^{1-b} \sqrt{\pi}}{\Gamma(a)\,\Gamma(b-a)} G_{2,4}^{1,2}\left(-\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-a, a-b+1 \\ 0, \frac{1-b}{2}, 1-\frac{b}{2}, 1-b \end{matrix}\right)$$

07.21.26.0017.01

$$e^{-z}\, {}_1\tilde{F}_1(a; b; z)\, {}_1\tilde{F}_1(b-a; b; z) = \frac{2^{1-b} \pi^{3/2}}{\Gamma(a)\,\Gamma(b-a)} G_{3,5}^{1,2}\left(\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-a, a-b+1, \frac{1}{2} \\ 0, \frac{1-b}{2}, 1-\frac{b}{2}, 1-b, \frac{1}{2} \end{matrix}\right)$$

07.21.26.0018.01

$$e^{-z}\, {}_1\tilde{F}_1(a; 2a; z)\, {}_1\tilde{F}_1(c; 2c; z) = \frac{2^{1-a-c} \sqrt{\pi}}{\Gamma(a)\,\Gamma(c)} G_{2,4}^{1,2}\left(-\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-\frac{a+c}{2}, \frac{1-a-c}{2} \\ 0, 1-a-c, \frac{1}{2}-c, \frac{1}{2}-a \end{matrix}\right)$$

07.21.26.0019.01

$$e^{-z}\, {}_1\tilde{F}_1(a; 2a; z)\, {}_1\tilde{F}_1(c; 2c; z) = \frac{2^{1-a-c} \pi^{3/2}}{\Gamma(a)\,\Gamma(c)} G_{3,5}^{1,2}\left(\frac{z^2}{4} \,\middle|\, \begin{matrix} 1-\frac{a+c}{2}, \frac{1-a-c}{2}, \frac{1}{2} \\ 0, 1-a-c, \frac{1}{2}-c, \frac{1}{2}-a, \frac{1}{2} \end{matrix}\right)$$

Classical cases involving ${}_1F_1$

07.21.26.0020.01

$${}_1\tilde{F}_1(a;\,b;\,z)\,{}_1F_1(a;\,b;\,-z) = \frac{2^{1-b}\sqrt{\pi}\,\Gamma(b)}{\Gamma(a)\,\Gamma(b-a)}\,G_{2,4}^{1,2}\!\left(-\frac{z^2}{4}\,\middle|\,\begin{array}{c}1-a,\,a-b+1\\ 0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b\end{array}\right)$$

07.21.26.0021.01

$${}_1\tilde{F}_1(a;\,b;\,z)\,{}_1F_1(a;\,b;\,-z) = \frac{2^{1-b}\,\pi^{3/2}\,\Gamma(b)}{\Gamma(a)\,\Gamma(b-a)}\,G_{3,5}^{1,2}\!\left(\frac{z^2}{4}\,\middle|\,\begin{array}{c}1-a,\,a-b+1,\,\frac{1}{2}\\ 0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b,\,\frac{1}{2}\end{array}\right)$$

07.21.26.0022.01

$${}_1\tilde{F}_1(c;\,2\,c;\,z)\,{}_1F_1(a;\,2\,a;\,-z) = \frac{2^{a-c}\,\Gamma\left(a+\frac{1}{2}\right)}{\Gamma(c)}\,G_{2,4}^{1,2}\!\left(-\frac{z^2}{4}\,\middle|\,\begin{array}{c}1-\frac{a+c}{2},\,\frac{1-a-c}{2}\\ 0,\,-a-c+1,\,\frac{1}{2}-c,\,\frac{1}{2}-a\end{array}\right)$$

07.21.26.0023.01

$${}_1\tilde{F}_1(c;\,2\,c;\,z)\,{}_1F_1(a;\,2\,a;\,-z) = \frac{2^{a-c}\,\pi\,\Gamma\left(a+\frac{1}{2}\right)}{\Gamma(c)}\,G_{3,5}^{1,2}\!\left(\frac{z^2}{4}\,\middle|\,\begin{array}{c}1-\frac{a+c}{2},\,\frac{1-a-c}{2},\,\frac{1}{2}\\ 0,\,1-a-c,\,\frac{1}{2}-c,\,\frac{1}{2}-a,\,\frac{1}{2}\end{array}\right)$$

Classical cases involving exp and ${}_1F_1$

07.21.26.0024.01

$$e^{-z}\,{}_1\tilde{F}_1(a;\,b;\,z)\,{}_1F_1(b-a;\,b;\,z) = \frac{2^{1-b}\sqrt{\pi}\,\Gamma(b)}{\Gamma(a)\,\Gamma(b-a)}\,G_{2,4}^{1,2}\!\left(-\frac{z^2}{4}\,\middle|\,\begin{array}{c}a-b+1,\,1-a\\ 0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b\end{array}\right)$$

07.21.26.0025.01

$$e^{-z}\,{}_1\tilde{F}_1(a;\,b;\,z)\,{}_1F_1(b-a;\,b;\,z) = \frac{2^{1-b}\,\pi^{3/2}\,\Gamma(b)}{\Gamma(a)\,\Gamma(b-a)}\,G_{3,5}^{1,2}\!\left(\frac{z^2}{4}\,\middle|\,\begin{array}{c}a-b+1,\,1-a,\,\frac{1}{2}\\ 0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b,\,\frac{1}{2}\end{array}\right)$$

07.21.26.0026.01

$$e^{-z}\,{}_1\tilde{F}_1(a;\,2\,a;\,z)\,{}_1F_1(c;\,2\,c;\,z) = \frac{2^{c-a}\,\Gamma\left(c+\frac{1}{2}\right)}{\Gamma(a)}\,G_{2,4}^{1,2}\!\left(-\frac{z^2}{4}\,\middle|\,\begin{array}{c}1-\frac{a+c}{2},\,\frac{1-a-c}{2}\\ 0,\,1-a-c,\,\frac{1}{2}-a,\,\frac{1}{2}-c\end{array}\right)$$

07.21.26.0027.01

$$e^{-z}\,{}_1\tilde{F}_1(a;\,2\,a;\,z)\,{}_1F_1(c;\,2\,c;\,z) = \frac{2^{c-a}\,\pi\,\Gamma\left(c+\frac{1}{2}\right)}{\Gamma(a)}\,G_{3,5}^{1,2}\!\left(\frac{z^2}{4}\,\middle|\,\begin{array}{c}1-\frac{a+c}{2},\,\frac{1-a-c}{2},\,\frac{1}{2}\\ 0,\,1-a-c,\,\frac{1}{2}-a,\,\frac{1}{2}-c,\,\frac{1}{2}\end{array}\right)$$

Classical cases involving hypergeometric U

07.21.26.0033.01

$${}_1\tilde{F}_1\left(a;\,b;\,-\sqrt{z}\right)U\left(a,\,b,\,\sqrt{z}\right) = \frac{2^{-b}}{\sqrt{\pi}\,\Gamma(a)}\,G_{2,4}^{3,1}\!\left(\frac{z}{4}\,\middle|\,\begin{array}{c}1-a,\,a-b+1\\ 0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b\end{array}\right)$$

07.21.26.0028.01

$${}_1\tilde{F}_1(a;\,b;\,z)\,U(a,\,b,\,-z) = \frac{2^{-b}}{\sqrt{\pi}\,\Gamma(a)}\,G_{2,4}^{3,1}\!\left(\frac{z^2}{4}\,\middle|\,\begin{array}{c}1-a,\,a-b+1\\ 0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b\end{array}\right)/;\ \frac{\pi}{2} < \arg(z) \leq \pi \bigwedge -\pi < \arg(z) \leq -\frac{\pi}{2}$$

Classical cases involving exp and hypergeometric U

07.21.26.0034.01

$$e^{-\sqrt{z}}\ {}_1\tilde{F}_1\left(a; b; \sqrt{z}\right) U\left(b-a, b, \sqrt{z}\right) = \frac{2^{-b}}{\sqrt{\pi}\ \Gamma(b-a)} G_{2,4}^{3,1}\left(\frac{z}{4} \middle| \begin{array}{c} a-b+1, 1-a \\ \frac{1-b}{2}, 1-\frac{b}{2}, 0, 1-b \end{array}\right)$$

07.21.26.0029.01

$$e^{-z}\ {}_1\tilde{F}_1(a; b; z)\, U(b-a, b, z) = \frac{2^{-b}}{\sqrt{\pi}\ \Gamma(b-a)} G_{2,4}^{3,1}\left(\frac{z^2}{4} \middle| \begin{array}{c} a-b+1, 1-a \\ \frac{1-b}{2}, 1-\frac{b}{2}, 0, 1-b \end{array}\right) /; -\frac{\pi}{2} < \arg(z) \leq \frac{\pi}{2}$$

Classical cases involving Laguerre L

07.21.26.0039.01

$${}_1\tilde{F}_1(a; 1; z)\, L_{-a}(-z) = \frac{\sin(a\pi)}{\sqrt{\pi}} G_{2,4}^{1,2}\left(-\frac{z^2}{4} \middle| \begin{array}{c} 1-a, a \\ 0, 0, 0, \frac{1}{2} \end{array}\right)$$

07.21.26.0040.01

$${}_1\tilde{F}_1(a; 1; z)\, L_{-a}(-z) = \sqrt{\pi}\ \sin(a\pi)\, G_{3,5}^{1,2}\left(\frac{z^2}{4} \middle| \begin{array}{c} 1-a, a, \frac{1}{2} \\ 0, 0, 0, \frac{1}{2}, \frac{1}{2} \end{array}\right)$$

07.21.26.0041.01

$${}_1\tilde{F}_1(a; b; z)\, L_{-a}^{b-1}(-z) = \frac{2^{1-b}\sin(a\pi)}{\sqrt{\pi}} G_{2,4}^{1,2}\left(-\frac{z^2}{4} \middle| \begin{array}{c} 1-a, a-b+1 \\ 0, \frac{1-b}{2}, \frac{2-b}{2}, 1-b \end{array}\right)$$

07.21.26.0042.01

$${}_1\tilde{F}_1(a; b; z)\, L_{-a}^{b-1}(-z) = 2^{1-b}\sqrt{\pi}\ \sin(a\pi)\, G_{3,5}^{1,2}\left(\frac{z^2}{4} \middle| \begin{array}{c} 1-a, a-b+1, \frac{1}{2} \\ 0, \frac{1-b}{2}, \frac{2-b}{2}, 1-b, \frac{1}{2} \end{array}\right)$$

Classical cases involving exp and Laguerre L

07.21.26.0043.01

$$e^{-z}\ {}_1\tilde{F}_1(a; b; z)\, L_{a-b}^{b-1}(z) = -2^{1-b}\sqrt{\pi}\ \sin((a-b)\pi)\, G_{3,5}^{1,2}\left(\frac{z^2}{4} \middle| \begin{array}{c} a-b+1, 1-a, \frac{1}{2} \\ 0, \frac{1-b}{2}, 1-\frac{b}{2}, 1-b, \frac{1}{2} \end{array}\right)$$

Generalized cases for the direct function itself

07.21.26.0035.01

$${}_1\tilde{F}_1(a; b; -z) + {}_1\tilde{F}_1(a; b; z) = \frac{2^{a-b+1}\pi^{3/2}}{\Gamma(a)} G_{3,5}^{1,2}\left(\frac{z}{2}, \frac{1}{2} \middle| \begin{array}{c} \frac{1-a}{2}, 1-\frac{a}{2}, \frac{1}{2} \\ 0, \frac{1}{2}, \frac{1}{2}, \frac{1-b}{2}, 1-\frac{b}{2} \end{array}\right)$$

07.21.26.0030.01

$${}_1\tilde{F}_1(a; b; z) - {}_1\tilde{F}_1(a; b; -z) = \frac{2^{a-b+1}\pi^{3/2}}{\Gamma(a)} G_{3,5}^{1,2}\left(\frac{z}{2}, \frac{1}{2} \middle| \begin{array}{c} \frac{1-a}{2}, 1-\frac{a}{2}, 1 \\ \frac{1}{2}, 0, 1, \frac{1-b}{2}, 1-\frac{b}{2} \end{array}\right)$$

Generalized cases for products of ${}_1\tilde{F}_1$

07.21.26.0044.01

$${}_1\tilde{F}_1(a; b; z)\, {}_1\tilde{F}_1(a; b; -z) = \frac{2^{1-b}\sqrt{\pi}}{\Gamma(a)\,\Gamma(b-a)} G_{2,4}^{1,2}\left(\frac{i z}{2}, \frac{1}{2} \middle| \begin{array}{c} 1-a, a-b+1 \\ 0, \frac{1-b}{2}, 1-\frac{b}{2}, 1-b \end{array}\right)$$

07.21.26.0045.01

$$ {}_1\tilde{F}_1(a;\, b;\, z)\, {}_1\tilde{F}_1(a;\, b;\, -z) = \frac{2^{1-b}\, \pi^{3/2}}{\Gamma(a)\, \Gamma(b-a)}\, G_{3,5}^{1,2}\!\left(\frac{z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-a,\, a-b+1,\, \frac{1}{2} \\ 0,\, \frac{1-b}{2},\, 1-\frac{b}{2},\, 1-b,\, \frac{1}{2} \end{array}\right) $$

07.21.26.0046.01

$$ {}_1\tilde{F}_1(a;\, 2\,a;\, z)\, {}_1\tilde{F}_1(c;\, 2\,c;\, -z) = \frac{2^{-a-c+1}\, \sqrt{\pi}}{\Gamma(a)\, \Gamma(c)}\, G_{2,4}^{1,2}\!\left(\frac{i\,z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-\frac{a+c}{2},\, \frac{1}{2}(-a-c+1) \\ 0,\, -a-c+1,\, \frac{1}{2}-c,\, \frac{1}{2}-a \end{array}\right) $$

07.21.26.0047.01

$$ {}_1\tilde{F}_1(a;\, 2\,a;\, z)\, {}_1\tilde{F}_1(c;\, 2\,c;\, -z) = \frac{2^{-a-c+1}\, \pi^{3/2}}{\Gamma(a)\, \Gamma(c)}\, G_{3,5}^{1,2}\!\left(\frac{z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-\frac{a+c}{2},\, \frac{1}{2}(-a-c+1),\, \frac{1}{2} \\ 0,\, -a-c+1,\, \frac{1}{2}-c,\, \frac{1}{2}-a,\, \frac{1}{2} \end{array}\right) $$

Generalized cases involving exp and products of ${}_1\tilde{F}_1$

07.21.26.0048.01

$$ e^{-z}\, {}_1\tilde{F}_1(a;\, b;\, z)\, {}_1\tilde{F}_1(b-a;\, b;\, z) = \frac{2^{1-b}\, \sqrt{\pi}}{\Gamma(a)\, \Gamma(b-a)}\, G_{2,4}^{1,2}\!\left(\frac{i\,z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-a,\, a-b+1 \\ 0,\, \frac{1-b}{2},\, 1-\frac{b}{2},\, 1-b \end{array}\right) $$

07.21.26.0049.01

$$ e^{-z}\, {}_1\tilde{F}_1(a;\, b;\, z)\, {}_1\tilde{F}_1(b-a;\, b;\, z) = \frac{2^{1-b}\, \pi^{3/2}}{\Gamma(a)\, \Gamma(b-a)}\, G_{3,5}^{1,2}\!\left(\frac{z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-a,\, a-b+1,\, \frac{1}{2} \\ 0,\, \frac{1-b}{2},\, 1-\frac{b}{2},\, 1-b,\, \frac{1}{2} \end{array}\right) $$

07.21.26.0050.01

$$ e^{-z}\, {}_1\tilde{F}_1(a;\, 2\,a;\, z)\, {}_1\tilde{F}_1(c;\, 2\,c;\, z) = \frac{2^{-a-c+1}\, \sqrt{\pi}}{\Gamma(a)\, \Gamma(c)}\, G_{2,4}^{1,2}\!\left(\frac{i\,z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-\frac{a+c}{2},\, \frac{1}{2}(-a-c+1) \\ 0,\, -a-c+1,\, \frac{1}{2}-c,\, \frac{1}{2}-a \end{array}\right) $$

07.21.26.0051.01

$$ e^{-z}\, {}_1\tilde{F}_1(a;\, 2\,a;\, z)\, {}_1\tilde{F}_1(c;\, 2\,c;\, z) = \frac{2^{-a-c+1}\, \pi^{3/2}}{\Gamma(a)\, \Gamma(c)}\, G_{3,5}^{1,2}\!\left(\frac{z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-\frac{a+c}{2},\, \frac{1}{2}(-a-c+1),\, \frac{1}{2} \\ 0,\, -a-c+1,\, \frac{1}{2}-c,\, \frac{1}{2}-a,\, \frac{1}{2} \end{array}\right) $$

Generalized cases involving ${}_1F_1$

07.21.26.0052.01

$$ {}_1F_1(a;\, b;\, z)\, {}_1\tilde{F}_1(a;\, b;\, -z) = \frac{2^{1-b}\, \sqrt{\pi}\, \Gamma(b)}{\Gamma(a)\, \Gamma(b-a)}\, G_{2,4}^{1,2}\!\left(\frac{i\,z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-a,\, a-b+1 \\ 0,\, \frac{1-b}{2},\, 1-\frac{b}{2},\, 1-b \end{array}\right) $$

07.21.26.0053.01

$$ {}_1F_1(a;\, b;\, z)\, {}_1\tilde{F}_1(a;\, b;\, -z) = \frac{2^{1-b}\, \pi^{3/2}\, \Gamma(b)}{\Gamma(a)\, \Gamma(b-a)}\, G_{3,5}^{1,2}\!\left(\frac{z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-a,\, a-b+1,\, \frac{1}{2} \\ 0,\, \frac{1-b}{2},\, 1-\frac{b}{2},\, 1-b,\, \frac{1}{2} \end{array}\right) $$

07.21.26.0054.01

$$ {}_1F_1(a;\, 2\,a;\, z)\, {}_1\tilde{F}_1(c;\, 2\,c;\, -z) = \frac{2^{a-c}\, \Gamma\!\left(a+\frac{1}{2}\right)}{\Gamma(c)}\, G_{2,4}^{1,2}\!\left(\frac{i\,z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-\frac{a+c}{2},\, \frac{1}{2}(-a-c+1) \\ 0,\, -a-c+1,\, \frac{1}{2}-c,\, \frac{1}{2}-a \end{array}\right) $$

07.21.26.0055.01

$$ {}_1F_1(a;\, 2\,a;\, z)\, {}_1\tilde{F}_1(c;\, 2\,c;\, -z) = \frac{2^{a-c}\, \pi\, \Gamma\!\left(a+\frac{1}{2}\right)}{\Gamma(c)}\, G_{3,5}^{1,2}\!\left(\frac{z}{2},\, \frac{1}{2} \,\middle|\, \begin{array}{c} 1-\frac{a+c}{2},\, \frac{1}{2}(-a-c+1),\, \frac{1}{2} \\ 0,\, -a-c+1,\, \frac{1}{2}-c,\, \frac{1}{2}-a,\, \frac{1}{2} \end{array}\right) $$

Generalized cases involving exp and $_1F_1$

07.21.26.0056.01

$$e^{-z}\,{}_1F_1(a;b;z)\,{}_1\tilde{F}_1(b-a;b;z)=\frac{2^{1-b}\sqrt{\pi}\,\Gamma(b)}{\Gamma(a)\,\Gamma(b-a)}\,G_{2,4}^{1,2}\!\left(\frac{i\,z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}1-a,\,a-b+1\\0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b\end{array}\right)$$

07.21.26.0057.01

$$e^{-z}\,{}_1F_1(a;b;z)\,{}_1\tilde{F}_1(b-a;b;z)=\frac{2^{1-b}\,\pi^{3/2}\,\Gamma(b)}{\Gamma(a)\,\Gamma(b-a)}\,G_{3,5}^{1,2}\!\left(\frac{z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}1-a,\,a-b+1,\,\frac{1}{2}\\0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b,\,\frac{1}{2}\end{array}\right)$$

07.21.26.0058.01

$$e^{-z}\,{}_1F_1(a;2\,a;z)\,{}_1\tilde{F}_1(c;2\,c;z)=\frac{2^{a-c}\,\Gamma\!\left(a+\frac{1}{2}\right)}{\Gamma(c)}\,G_{2,4}^{1,2}\!\left(\frac{i\,z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}1-\frac{a+c}{2},\,\frac{1}{2}(-a-c+1)\\0,\,-a-c+1,\,\frac{1}{2}-c,\,\frac{1}{2}-a\end{array}\right)$$

07.21.26.0059.01

$$e^{-z}\,{}_1F_1(a;2\,a;z)\,{}_1\tilde{F}_1(c;2\,c;z)=\frac{2^{a-c}\,\pi\,\Gamma\!\left(a+\frac{1}{2}\right)}{\Gamma(c)}\,G_{3,5}^{1,2}\!\left(\frac{z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}1-\frac{a+c}{2},\,\frac{1}{2}(-a-c+1),\,\frac{1}{2}\\0,\,-a-c+1,\,\frac{1}{2}-c,\,\frac{1}{2}-a,\,\frac{1}{2}\end{array}\right)$$

Generalized cases involving hypergeometric U

07.21.26.0060.01

$${}_1\tilde{F}_1(a;b;-z)\,U(a,b,z)=\frac{2^{-b}}{\sqrt{\pi}\,\Gamma(a)}\,G_{2,4}^{3,1}\!\left(\frac{z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}1-a,\,a-b+1\\0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b\end{array}\right)$$

Generalized cases involving exp and hypergeometric U

07.21.26.0061.01

$$e^{-z}\,{}_1\tilde{F}_1(a;b;z)\,U(b-a,b,z)=\frac{2^{-b}}{\sqrt{\pi}\,\Gamma(b-a)}\,G_{2,4}^{3,1}\!\left(\frac{z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}a-b+1,\,1-a\\0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b\end{array}\right)$$

Generalized cases involving Laguerre L

07.21.26.0062.01

$${}_1\tilde{F}_1(a;1;z)\,L_{-a}(-z)=\frac{\sin(a\,\pi)}{\sqrt{\pi}}\,G_{2,4}^{1,2}\!\left(-\frac{1}{2}(i\,z),\frac{1}{2}\,\middle|\,\begin{array}{c}1-a,\,a\\0,\,0,\,0,\,\frac{1}{2}\end{array}\right)$$

07.21.26.0063.01

$${}_1\tilde{F}_1(a;1;z)\,L_{-a}(-z)=\sqrt{\pi}\,\sin(a\,\pi)\,G_{3,5}^{1,2}\!\left(-\frac{z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}1-a,\,a,\,\frac{1}{2}\\0,\,0,\,0,\,\frac{1}{2},\,\frac{1}{2}\end{array}\right)$$

07.21.26.0064.01

$${}_1\tilde{F}_1(a;b;z)\,L_{-a}^{b-1}(-z)=\frac{2^{1-b}\sin(a\,\pi)}{\sqrt{\pi}}\,G_{2,4}^{1,2}\!\left(-\frac{1}{2}(i\,z),\frac{1}{2}\,\middle|\,\begin{array}{c}1-a,\,a-b+1\\0,\,\frac{1-b}{2},\,\frac{2-b}{2},\,1-b\end{array}\right)$$

07.21.26.0065.01

$${}_1\tilde{F}_1(a;b;z)\,L_{-a}^{b-1}(-z)=2^{1-b}\sqrt{\pi}\,\sin(a\,\pi)\,G_{3,5}^{1,2}\!\left(-\frac{z}{2},\frac{1}{2}\,\middle|\,\begin{array}{c}1-a,\,a-b+1,\,\frac{1}{2}\\0,\,\frac{1-b}{2},\,\frac{2-b}{2},\,1-b,\,\frac{1}{2}\end{array}\right)$$

Generalized cases involving exp and Laguerre L

07.21.26.0066.01

$$e^{-z}\,{}_1\tilde{F}_1(a;\,b;\,z)\,L_{a-b}^{b-1}(z) = -2^{1-b}\,\sqrt{\pi}\,\sin((a-b)\,\pi)\,G_{3,5}^{1,2}\!\left(\frac{z}{2},\,\frac{1}{2}\,\middle|\,\begin{array}{c} a-b+1,\,1-a,\,\frac{1}{2} \\ 0,\,\frac{1-b}{2},\,1-\frac{b}{2},\,1-b,\,\frac{1}{2} \end{array}\right)$$

Representations through equivalent functions

With related functions

07.21.27.0001.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \frac{\Gamma(1-a)}{\Gamma(b-a)}\,L_{-a}^{b-1}(z)$$

07.21.27.0002.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \frac{\Gamma(a-b+1)\,z^{1-b}}{\Gamma(a)}\,{}_1\tilde{F}_1(a-b+1;\,2-b;\,z) + \frac{\Gamma(a-b+1)\sin(b\,\pi)}{\pi}\,U(a,\,b,\,z)\;/;\;b\notin\mathbb{Z}$$

07.21.27.0003.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \frac{\sin(b\,\pi)}{\Gamma(a)\,\Gamma(b-a)\left((-z)^b\sin(a\,\pi)-z^b\sin((a-b)\,\pi)\right)}\left(e^z\,\Gamma(b-a)\,U(b-a,\,b,\,-z)\,(-z)^b + z^b\,\Gamma(a)\,U(a,\,b,\,z)\right)/;\;b\notin\mathbb{Z}$$

07.21.27.0004.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \frac{e^{z/2}\,z^{-\frac{b}{2}}}{\Gamma(b)}\,M_{\frac{1}{2}(b-2\,a),\frac{b-1}{2}}(z)$$

07.21.27.0005.01

$${}_1\tilde{F}_1(a;\,b;\,z) = \frac{e^{z/2}\sin(b\,\pi)}{\Gamma(a)\,\Gamma(b-a)\left((-z)^b\sin(a\,\pi)-z^b\sin((a-b)\,\pi)\right)}\left(\Gamma(b-a)\,W_{a-\frac{b}{2},\frac{1-b}{2}}(-z)\,(-z)^{b/2} + z^{b/2}\,\Gamma(a)\,W_{\frac{b}{2}-a,\frac{1}{2}-\frac{b}{2}}(z)\right)/;\;b\notin\mathbb{Z}$$

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