"LogLogisticRV(1, 2)"

$$[x \mapsto 2\,\frac{x}{(x^2+1)^2}]$$

$$t \mapsto t^2$$

Probability Distribution Function

$$f(x) = (x+1)^{-2}$$

Cumulative Distribution Function

$$F(x) = \frac{x}{x+1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\frac{s}{-1+s}]$$

Survivor Function

$$S(x) = (x+1)^{-1}$$

Hazard Function

$$h(x) = (x+1)^{-1}$$

Mean

$$mu = \infty$$

Variance

$$sigma^2 = undefined$$

Moment Function

$$m(x) = \pi\ \csc(\pi\,r)\,r$$

Moment Generating Function

$$\lim_{x\to\infty} -\frac{Ei(1,-tx-t)\,tx\mathrm{e}^{-t} - Ei(1,-t)\,tx\mathrm{e}^{-t} + Ei(1,-tx-t)\,t\mathrm{e}^{-t} - \mathrm{e}^{-t}Ei(1,-t)\,t + \mathrm{e}^{tx} - x -}{x+1}$$

$$t \mapsto \sqrt{t}$$

Probability Distribution Function

$$f(x) = 4\,\frac{x^3}{(x^4+1)^2}$$

Cumulative Distribution Function

$$F(x) = \frac{x^4}{x^4+1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto -\frac{\sqrt{-(s-1)\sqrt{-(s-1)\,s}}}{s-1}]$$

Survivor Function

$$S(x) = \left(x^4+1\right)^{-1}$$

Hazard Function

$$h(x) = 4\,\frac{x^3}{x^4+1}$$

Mean

$$mu = 1/4\,\pi\,\sqrt{2}$$

Variance

$$sigma^2 = \pi/2 - 1/8\,\pi^2$$

Moment Function

$$m(x) = 1/4\,\pi\,\csc(1/4\,\pi\,r)\,r$$

Moment Generating Function

$$\lim_{x\to\infty} -1/8\,\frac{-8 + i\mathrm{e}^{(-1/2-i/2)\sqrt{2}t}Ei\left(1, -tx - 1/2\,\sqrt{2}t - i/2t\sqrt{2}\right)\sqrt{2}t + i\mathrm{e}^{(1/2-i/2)\sqrt{2}t}Ei\left(1, -tx + 1/\right.}{}$$

$$t \mapsto t^{-1}$$

Probability Distribution Function

$$f(x) = 2\,\frac{x}{(x^2+1)^2}$$

Cumulative Distribution Function

$$F(x) = \frac{x^2}{x^2+1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto -\frac{\sqrt{-(s-1)\,s}}{s-1}]$$

Survivor Function

$$S(x) = \left(x^2+1\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{x}{x^2+1}$$

Mean

$$mu = \pi/2$$

Variance

$$sigma^2 = \infty$$

Moment Function

$$m(x) = 1/2\,\pi\,\csc\left(1/2\,\pi\,r\right)r$$

Moment Generating Function

$$\lim_{x\to\infty} 1/2\,\frac{-e^{it}\,csgn\,(t)\,\pi\,tx^2 + 2\,e^{it}\,Si\,(t)\,tx^2 + ie^{it}\,Ei\,(1,-tx+it)\,tx^2 - e^{it}\,csgn\,(t)\,\pi\,t - ie^{it}\,Ei\,(1,-}{}$$

$$t \mapsto \arctan(t)$$

Probability Distribution Function

$$f(x) = 2\,\sin(x)\cos(x)$$

Cumulative Distribution Function

$$F(x) = (\sin(x))^2$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \arcsin\left(\sqrt{s}\right)]$$

Survivor Function

$$S(x) = (\cos(x))^2$$

Hazard Function

$$h(x) = 2\,\frac{\sin(x)}{\cos(x)}$$

Mean

$$mu = \pi/4$$

Variance

$$sigma^2 = 1/16\,\pi^2 - 1/2$$

Moment Function

$$m(x) = 3\,\frac{2^{-2-r}\sqrt{\pi}\,(4/3 + 2/3\,r)\,\mathit{LommelS1}\,(r + 1/2, 1/2, \pi)}{2 + r}$$

Moment Generating Function

$$2\,\frac{1 + \mathrm{e}^{1/2\,\pi\,t}}{t^2 + 4}\ _1$$

$$t \mapsto \mathrm{e}^t$$

Probability Distribution Function

$$f(x) = 2\,\frac{\ln(x)}{\left((\ln(x))^2 + 1\right)^2 x}$$

Cumulative Distribution Function

$$F(x) = \frac{(\ln(x))^2}{(\ln(x))^2 + 1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto \mathrm{e}^{-\frac{\sqrt{-(s-1)s}}{s-1}}]$$

Survivor Function

$$S(x) = \left((\ln(x))^2 + 1\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{\ln(x)}{\left((\ln(x))^2+1\right)x}$$

Mean

$$mu = \infty$$

Variance

$$sigma^2 = undefined$$

Moment Function

$$m(x) = \infty$$

Moment Generating Function

$$\int_1^{\infty} 2\,\frac{e^{tx}\ln(x)}{\left((\ln(x))^2+1\right)^2 x}\,dx_1$$

$$t \mapsto \ln(t)$$

Probability Distribution Function

$$f(x) = 2\,\frac{e^{2x}}{\left(e^{2x}+1\right)^2}$$

Cumulative Distribution Function

$$F(x) = \frac{e^{2x}}{e^{2x}+1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto 1/2\,\ln\left(-\frac{s}{-1+s}\right)]$$

Survivor Function

$$S(x) = \left(e^{2x}+1\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{e^{2x}}{e^{2x}+1}$$

Mean

$$mu = 0$$

Variance

$$sigma^2 = 1/12\,\pi^2$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} 2\,\frac{x^r \mathrm{e}^{2\,x}}{\left(\mathrm{e}^{2\,x}+1\right)^2}\,\mathrm{d}x$$

Moment Generating Function

$$\int_{-\infty}^{\infty} 2\,\frac{\mathrm{e}^{x(t+2)}}{\left(\mathrm{e}^{2\,x}+1\right)^2}\,\mathrm{d}x_1$$

$$t \mapsto \mathrm{e}^{-t}$$

Probability Distribution Function

$$f(x) = -2\,\frac{\ln(x)}{\left((\ln(x))^2+1\right)^2 x}$$

Cumulative Distribution Function

$$F(x) = \left((\ln(x))^2+1\right)^{-1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto \mathrm{e}^{-\frac{\sqrt{-s(s-1)}}{s}}]$$

Survivor Function

$$S(x) = 1 - \left((\ln(x))^2+1\right)^{-1}$$

Hazard Function

$$h(x) = -2\,\frac{1}{\ln(x)\left((\ln(x))^2+1\right)x}$$

Mean

$$mu = -i/2\mathrm{e}^{i}Ei\,(1,i) + i/2\mathrm{e}^{-i}Ei\,(1,-i) + 1$$

Variance

$$sigma^2 = -iEi\,(1,2\,i)\,\mathrm{e}^{2\,i} + iEi\,(1,-2\,i)\,\mathrm{e}^{-2\,i} + 1/4\,\mathrm{e}^{2\,i}\,(Ei\,(1,i))^2 - 1/2\,Ei\,(1,i)\,Ei\,(1,-i) + i\mathrm{e}^{i}Ei\,(1$$

Moment Function

$$m(x) = -1/2\ \left(ir\,\mathrm{e}^{2\,ir}Ei\,(1, ir) - ir\,Ei\,(1, -ir) - 2\,\mathrm{e}^{ir}\right)\mathrm{e}^{-ir}$$

Moment Generating Function

$$-2\int_0^1 \frac{\mathrm{e}^{tx}\ln{(x)}}{\left((\ln{(x)})^2+1\right)^2 x}\,\mathrm{d}x_1$$

$$t \mapsto -\ln{(t)}$$

Probability Distribution Function

$$f(x) = 2\,\frac{\mathrm{e}^{2\,x}}{(\mathrm{e}^{2\,x}+1)^2}$$

Cumulative Distribution Function

$$F(x) = \frac{\mathrm{e}^{2\,x}}{\mathrm{e}^{2\,x}+1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto 1/2\,\ln\left(-\frac{s}{-1+s}\right)]$$

Survivor Function

$$S(x) = \left(\mathrm{e}^{2\,x}+1\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{\mathrm{e}^{2\,x}}{\mathrm{e}^{2\,x}+1}$$

Mean

$$mu = 0$$

Variance

$$sigma^2 = 1/12\,\pi^2$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} 2\,\frac{x^r\mathrm{e}^{2\,x}}{(\mathrm{e}^{2\,x}+1)^2}\,\mathrm{d}x$$

Moment Generating Function

$$\int_{-\infty}^{\infty} 2\,\frac{e^{x(t+2)}}{\left(e^{2\,x}+1\right)^2}\,dx_1$$

$$t \mapsto \ln\left(t+1\right)$$

Probability Distribution Function

$$f(x) = 2\,\frac{\left(e^{x}-1\right)e^{x}}{\left(-e^{2\,x}+2\,e^{x}-2\right)^2}$$

Cumulative Distribution Function

$$F(x) = \frac{e^{2\,x}-2\,e^{x}+1}{e^{2\,x}-2\,e^{x}+2}$$

Inverse Cumulative Distribution Function

$$[s \mapsto \ln\left(-\frac{-s+1+\sqrt{-s\left(s-1\right)}}{s-1}\right)]$$

Survivor Function

$$S(x) = \left(e^{2\,x}-2\,e^{x}+2\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{\left(e^{x}-1\right)e^{x}}{e^{2\,x}-2\,e^{x}+2}$$

Mean

$$mu = \pi/4$$

Variance

$$sigma^2 = \left(1/2-i/2\right) dilog\left(1/2-i/2\right)+\left(1/2+i/2\right) dilog\left(1/2+i/2\right)+i/2\ln\left(2\right)\ln\left(-1-i\right)+i/4$$

Moment Function

$$m(x) = \int_{0}^{\infty} 2\,\frac{x^{r}\left(e^{x}-1\right)e^{x}}{\left(-e^{2\,x}+2\,e^{x}-2\right)^2}\,dx$$

Moment Generating Function

$$\int_0^{\infty} 2\,\frac{(e^{x}-1)\,e^{x(t+1)}}{\left(e^{2x}-2\,e^{x}+2\right)^2}\,dx_1$$

$$t \mapsto (\ln(t+2))^{-1}$$

Probability Distribution Function

$$f(x) = 2\,\frac{\left(e^{x^{-1}}-2\right)e^{x^{-1}}}{x^2}\left(e^{2x^{-1}}-4\,e^{x^{-1}}+5\right)^{-2}$$

Cumulative Distribution Function

$$F(x) = \left(e^{2x^{-1}}-4\,e^{x^{-1}}+5\right)^{-1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(\ln\left(\frac{2\,s+\sqrt{-s\,(s-1)}}{s}\right)\right)^{-1}]$$

Survivor Function

$$S(x) = 1\left(e^{2x^{-1}}-4\,e^{x^{-1}}+4\right)\left(e^{2x^{-1}}-4\,e^{x^{-1}}+5\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{e^{x^{-1}}}{\left(e^{x^{-1}}-2\right)x^2}\left(e^{2x^{-1}}-4\,e^{x^{-1}}+5\right)^{-1}$$

Mean

$$mu = 2\int_0^{(\ln(2))^{-1}}\frac{\left(e^{x^{-1}}-2\right)e^{x^{-1}}}{x}\left(-e^{2x^{-1}}+4\,e^{x^{-1}}-5\right)^{-2}dx$$

Variance

$$sigma^2 = 2\int_0^{(\ln(2))^{-1}}\left(e^{x^{-1}}-2\right)e^{x^{-1}}\left(-e^{2x^{-1}}+4\,e^{x^{-1}}-5\right)^{-2}dx - 4\left(\int_0^{(\ln(2))^{-1}}\frac{\left(e^{x^{-1}}-2\right)e^{x^{-1}}}{x}\right.$$

Moment Function

$$m(x) = \int_0^{(\ln(2))^{-1}} 2\,\frac{x^r\left(e^{x^{-1}}-2\right)e^{x^{-1}}}{x^2}\left(e^{2\,x^{-1}}-4\,e^{x^{-1}}+5\right)^{-2}dx$$

Moment Generating Function

$$2\int_0^{(\ln(2))^{-1}} \frac{e^{x^{-1}}-2}{x^2}e^{\frac{tx^2+1}{x}}\left(-e^{2\,x^{-1}}+4\,e^{x^{-1}}-5\right)^{-2}dx_1$$

$$t \mapsto \tanh(t)$$

Probability Distribution Function

$$f(x) = -2\,\frac{\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}$$

Cumulative Distribution Function

$$F(x) = \frac{(\operatorname{arctanh}(x))^2}{(\operatorname{arctanh}(x))^2+1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto -\tanh\left(\frac{\sqrt{-(s-1)\,s}}{s-1}\right)]$$

Survivor Function

$$S(x) = \left((\operatorname{arctanh}(x))^2+1\right)^{-1}$$

Hazard Function

$$h(x) = -2\,\frac{\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)(x^2-1)}$$

Mean

$$mu = -2\int_0^1 \frac{x\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}dx$$

Variance

$$sigma^2 = -2\int_0^1 \frac{x^2 \operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2 (x^2-1)}\,\mathrm{d}x - 4\left(\int_0^1 \frac{x \operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2 (x^2-1)}\,\mathrm{d}x\right)^2$$

Moment Function

$$m(x) = \int_0^1 -2\,\frac{x^r \operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2 (x^2-1)}\,\mathrm{d}x$$

Moment Generating Function

$$-2\int_0^1 \frac{\mathrm{e}^{tx} \operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2 (x^2-1)}\,\mathrm{d}x_1$$

$$t \mapsto \sinh(t)$$

Probability Distribution Function

$$f(x) = 2\,\frac{\operatorname{arcsinh}(x)}{\left((\operatorname{arcsinh}(x))^2+1\right)^2 \sqrt{x^2+1}}$$

Cumulative Distribution Function

$$F(x) = \frac{\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^2}{\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^2+1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -1/2\,\mathrm{e}^{\frac{\sqrt{-(s-1)s}}{s-1}} + 1/2\,\mathrm{e}^{-\frac{\sqrt{-(s-1)s}}{s-1}}]$$

Survivor Function

$$S(x) = \left(\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^2+1\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{\operatorname{arcsinh}(x)\left(\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^2+1\right)}{\left((\operatorname{arcsinh}(x))^2+1\right)^2 \sqrt{x^2+1}}$$

Mean

$$mu = \infty$$

Variance

$$sigma^2 = undefined$$

Moment Function

$$m(x) = \infty$$

Moment Generating Function

$$\int_0^{\infty} 2 \frac{e^{tx} \operatorname{arcsinh}(x)}{\left((\operatorname{arcsinh}(x))^2 + 1\right)^2 \sqrt{x^2+1}} \, dx_1$$

$$t \mapsto \operatorname{arcsinh}(t)$$

Probability Distribution Function

$$f(x) = 2 \frac{\sinh(x)}{(\cosh(x))^3}$$

Cumulative Distribution Function

$$F(x) = \frac{e^{4x} - 2e^{2x} + 1}{e^{4x} + 2e^{2x} + 1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto 1/2 \ln\left(-\frac{s + 1 + 2\sqrt{s}}{-1 + s}\right)]$$

Survivor Function

$$S(x) = 4 \frac{e^{2x}}{e^{4x} + 2e^{2x} + 1}$$

Hazard Function

$$h(x) = 1/2 \frac{\sinh(x)\left(e^{2x} + 2 + e^{-2x}\right)}{(\cosh(x))^3}$$

Mean

$$mu = 1$$

Variance

$$sigma^2 = 2\,\ln(2) - 1$$

Moment Function

$$m(x) = \int_0^\infty 2\,\frac{x^r \sinh(x)}{(\cosh(x))^3}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^\infty 2\,\frac{\mathrm{e}^{tx} \sinh(x)}{(\cosh(x))^3}\,\mathrm{d}x_1$$

$$t \mapsto \operatorname{csch}(t+1)$$

Probability Distribution Function

$$f(x) = 2\,\frac{-1 + \operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2 - 2\operatorname{arccsch}(x) + 2\right)^2 |x|}$$

Cumulative Distribution Function

$$F(x) = 2\int_0^x \frac{-1 + \operatorname{arccsch}(t)}{\sqrt{t^2+1}\left((\operatorname{arccsch}(t))^2 - 2\operatorname{arccsch}(t) + 2\right)^2 |t|}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function
Survivor Function

$$S(x) = 1 - 2\int_0^x \frac{-1 + \operatorname{arccsch}(t)}{\sqrt{t^2+1}\left((\operatorname{arccsch}(t))^2 - 2\operatorname{arccsch}(t) + 2\right)^2 |t|}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -2\,\frac{-1 + \operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2 - 2\operatorname{arccsch}(x) + 2\right)^2 |x|}\left(-1 + 2\int_0^x \frac{-1 + \operatorname{arc}}{\sqrt{t^2+1}\left((\operatorname{arccsch}(t))^2 \right.}\right.$$

Mean

$$mu = 2\int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{-1 + \operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2 - 2\operatorname{arccsch}(x) + 2\right)^2}\,\mathrm{d}x$$

Variance

$$sigma^2 = 2 \int_0^{2\,\frac{e}{e^2-1}} \frac{x\left(-1+\operatorname{arccsch}(x)\right)}{\sqrt{x^2+1}\,\left(\left(\operatorname{arccsch}(x)\right)^2 - 2\operatorname{arccsch}(x)+2\right)^2}\,dx - 4\left(\int_0^{2\,\frac{e}{e^2-1}} \frac{-}{\sqrt{x^2+1}\,\left((\operatorname{arcc}\right.}\right.$$

Moment Function

$$m(x) = \int_0^{2\left(e-e^{-1}\right)^{-1}} 2\,\frac{x^r\left(-1+\operatorname{arccsch}(x)\right)}{\sqrt{x^2+1}\,\left(\left(\operatorname{arccsch}(x)\right)^2 - 2\operatorname{arccsch}(x)+2\right)^2 |x|}\,dx$$

Moment Generating Function

$$2\int_0^{2\,\frac{e}{e^2-1}} \frac{e^{tx}\left(-1+\operatorname{arccsch}(x)\right)}{\sqrt{x^2+1}\,\left(\left(\operatorname{arccsch}(x)\right)^2 - 2\operatorname{arccsch}(x)+2\right)^2 x}\,dx_1$$

$$t \mapsto \operatorname{arccsch}(t+1)$$

Probability Distribution Function

$$f(x) = 2\,\frac{\sinh(x)\cosh(x)\left(\sinh(x)-1\right)}{-4\,\left(\cosh(x)\right)^4 + 8\,\sinh(x)\left(\cosh(x)\right)^2 - 4\,\sinh(x)+3}$$

Cumulative Distribution Function

$$F(x) = -1/2\,\frac{\left(e^{-x}-1\right)^2\left(e^{-x}+1\right)^2}{-e^{-4\,x} - 2\,e^{-3\,x} + 2\,e^{-x} - 1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\ln\left(RootOf\left((2\,s-1)\,\_Z^4 + 4\,s\_Z^3 + 2\,\_Z^2 - 4\,s\_Z + 2\,s - 1\right)\right)]$$

Survivor Function

$$S(x) = 1/2\,\frac{e^{-4\,x} + 4\,e^{-3\,x} + 2\,e^{-2\,x} - 4\,e^{-x} + 1}{e^{-4\,x} + 2\,e^{-3\,x} - 2\,e^{-x} + 1}$$

Hazard Function

$$h(x) = -4\,\frac{\left(\sinh(x)-1\right)\cosh(x)\sinh(x)\left(-e^{-4\,x} - 2\,e^{-3\,x} + 2\,e^{-x} - 1\right)}{\left(-e^{-4\,x} - 4\,e^{-3\,x} - 2\,e^{-2\,x} + 4\,e^{-x} - 1\right)\left(4\,\left(\cosh(x)\right)^4 - 8\,\sinh(x)\left(\cosh(x)\right)^2 + 4\,\sinh\right.}$$

Mean

$$mu = -1/20\,\arctan\left(\sqrt{5}\sqrt{-4+2\,\sqrt{5}} + 3/4\,\sqrt{5}\sqrt{-4+2\,\sqrt{5}}\sqrt{2} + 2\,\sqrt{-4+2\,\sqrt{5}} + 7/4\,\sqrt{-4+\right.$$

Variance

$$sigma^2 = 1/10\,\sqrt{4-2\,i}\ln\left(1+\sqrt{2}\right)\arctan\left(1/2\,\frac{\sqrt{5}\sqrt{-4+2\,\sqrt{5}}\sqrt{2}+2\,\sqrt{5}\sqrt{-4+2\,\sqrt{5}}-3\,\sqrt{}}{2\,\sqrt{5}\sqrt{}}\right.$$

Moment Function

$$m(x) = \int_0^{\ln\left(1+\sqrt{2}\right)} 2\,\frac{x^r\left(\sinh(x)-1\right)\cosh(x)\sinh(x)}{-4\,\left(\cosh(x)\right)^4+8\,\sinh(x)\left(\cosh(x)\right)^2-4\,\sinh(x)+3}\,\mathrm{d}x$$

Moment Generating Function

$$\frac{-2\,\displaystyle\int_0^{\ln\left(1+\sqrt{2}\right)}\frac{\mathrm{e}^{tx}\sinh(x)\cosh(x)\left(\sinh(x)-1\right)}{4\,\left(\cosh(x)\right)^4-8\,\sinh(x)\left(\cosh(x)\right)^2+4\,\sinh(x)-3}\,\mathrm{d}x_1}{}$$

$$t \mapsto \left(\tanh(t+1)\right)^{-1}$$

Probability Distribution Function

$$f(x) = \frac{-2+2\,\mathrm{arctanh}\left(x^{-1}\right)}{\left(\left(\mathrm{arctanh}\left(x^{-1}\right)\right)^2-2\,\mathrm{arctanh}\left(x^{-1}\right)+2\right)^2\left(x^2-1\right)}$$

Cumulative Distribution Function

$$F(x) = \left(\left(\mathrm{arctanh}\left(x^{-1}\right)\right)^2-2\,\mathrm{arctanh}\left(x^{-1}\right)+2\right)^{-1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(\tanh\left(\frac{s+\sqrt{-s\,(s-1)}}{s}\right)\right)^{-1}]$$

Survivor Function

$$S(x) = 1-\left(\left(\mathrm{arctanh}\left(x^{-1}\right)\right)^2-2\,\mathrm{arctanh}\left(x^{-1}\right)+2\right)^{-1}$$

Hazard Function

$$h(x) = 2\,\frac{1}{\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)\left(x^2-1\right)\left(\left(\operatorname{arctanh}\left(x^{-1}\right)\right)^2-2\operatorname{arctanh}\left(x^{-1}\right)+2\right)}$$

Mean

$$mu = 2\int_1^{\frac{e^2+1}{e^2-1}} \frac{x\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)}{\left(\left(\operatorname{arctanh}\left(x^{-1}\right)\right)^2-2\operatorname{arctanh}\left(x^{-1}\right)+2\right)^2\left(x^2-1\right)}\,dx$$

Variance

$$sigma^2 = 2\int_1^{\frac{e^2+1}{e^2-1}} \frac{x^2\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)}{\left(\left(\operatorname{arctanh}\left(x^{-1}\right)\right)^2-2\operatorname{arctanh}\left(x^{-1}\right)+2\right)^2\left(x^2-1\right)}\,dx - 4\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{}{\left(\left(\operatorname{arctanh}\left(x\right.\right.\right.}\right.$$

Moment Function

$$m(x) = \int_1^{\frac{e+e^{-1}}{e-e^{-1}}} \frac{x^r\left(-2+2\operatorname{arctanh}\left(x^{-1}\right)\right)}{\left(\left(\operatorname{arctanh}\left(x^{-1}\right)\right)^2-2\operatorname{arctanh}\left(x^{-1}\right)+2\right)^2\left(x^2-1\right)}\,dx$$

Moment Generating Function

$$2\int_1^{\frac{e^2+1}{e^2-1}} \frac{e^{tx}\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)}{\left(\left(\operatorname{arctanh}\left(x^{-1}\right)\right)^2-2\operatorname{arctanh}\left(x^{-1}\right)+2\right)^2\left(x^2-1\right)}\,dx_1$$

$$t \mapsto \left(\sinh\left(t+1\right)\right)^{-1}$$

Probability Distribution Function

$$f(x) = 2\,\frac{-1+\operatorname{arcsinh}\left(x^{-1}\right)}{\sqrt{x^2+1}\left(\left(\operatorname{arcsinh}\left(x^{-1}\right)\right)^2-2\operatorname{arcsinh}\left(x^{-1}\right)+2\right)^2|x|}$$

Cumulative Distribution Function

$$F(x) = \left(\left(\ln\left(\sqrt{x^2+1}+1\right)\right)^2 - 2\,\ln\left(\sqrt{x^2+1}+1\right)\ln\left(x\right) + \left(\ln\left(x\right)\right)^2 - 2\,\ln\left(\sqrt{x^2+1}+1\right) + 2\right.$$

Inverse Cumulative Distribution Function

$$F^{-1} = []$$

Survivor Function

$$S(x) = \frac{\left(\ln\left(\sqrt{x^2+1}+1\right)\right)^2 - 2\,\ln\left(\sqrt{x^2+1}+1\right)\ln(x) + (\ln(x))^2 - 2\,\ln\left(\sqrt{x^2+1}+1\right) + 2\,\ln(}{\left(\ln\left(\sqrt{x^2+1}+1\right)\right)^2 - 2\,\ln\left(\sqrt{x^2+1}+1\right)\ln(x) + (\ln(x))^2 - 2\,\ln\left(\sqrt{x^2+1}+1\right) + 2\,\ln(}$$

Hazard Function

$$h(x) = 2\,\frac{\left(-1+\operatorname{arcsinh}\left(x^{-1}\right)\right)\left(\left(\ln\left(\sqrt{x^2+1}+1\right)\right)^2 - 2\,\ln\left(\sqrt{x^2+1}+1\right)\ln(x) -}{\sqrt{x^2+1}\left(\left(\operatorname{arcsinh}\left(x^{-1}\right)\right)^2 - 2\operatorname{arcsinh}\left(x^{-1}\right)+2\right)^2|x|\left(\left(\ln\left(\sqrt{x^2+1}+1\right)\right)^2 - 2\,\ln\left(\sqrt{x^2}\right.\right.}$$

Mean

$$mu = 2\int_0^{2\,\frac{e}{e^2-1}} \frac{-1+\operatorname{arcsinh}\left(x^{-1}\right)}{\sqrt{x^2+1}\left(\left(\operatorname{arcsinh}\left(x^{-1}\right)\right)^2 - 2\operatorname{arcsinh}\left(x^{-1}\right)+2\right)^2}\,dx$$

Variance

$$sigma^2 = 2\int_0^{2\,\frac{e}{e^2-1}} \frac{x\left(-1+\operatorname{arcsinh}\left(x^{-1}\right)\right)}{\sqrt{x^2+1}\left(\left(\operatorname{arcsinh}\left(x^{-1}\right)\right)^2 - 2\operatorname{arcsinh}\left(x^{-1}\right)+2\right)^2}\,dx - 4\left(\int_0^{2\,\frac{e}{e^2-1}} \frac{}{\sqrt{x^2+1}\left(\left(\right.\right.}\right.$$

Moment Function

$$m(x) = \int_0^{-2\left(-e+e^{-1}\right)^{-1}} 2\,\frac{x^r\left(-1+\operatorname{arcsinh}\left(x^{-1}\right)\right)}{\sqrt{x^2+1}\left(\left(\operatorname{arcsinh}\left(x^{-1}\right)\right)^2 - 2\operatorname{arcsinh}\left(x^{-1}\right)+2\right)^2|x|}\,dx$$

Moment Generating Function

$$2\int_0^{2\,\frac{e}{e^2-1}} \frac{e^{tx}\left(-1+\operatorname{arcsinh}\left(x^{-1}\right)\right)}{\sqrt{x^2+1}\left(\left(\operatorname{arcsinh}\left(x^{-1}\right)\right)^2 - 2\operatorname{arcsinh}\left(x^{-1}\right)+2\right)^2 x}\,dx_1$$

$$t \mapsto \left(\operatorname{arcsinh}(t+1)\right)^{-1}$$

Probability Distribution Function

$$f(x) = -2\,\frac{\cosh\left(x^{-1}\right)\left(-1+\sinh\left(x^{-1}\right)\right)}{x^2\left(-\left(\cosh\left(x^{-1}\right)\right)^4 + 4\,\sinh\left(x^{-1}\right)\left(\cosh\left(x^{-1}\right)\right)^2 - 6\,\left(\cosh\left(x^{-1}\right)\right)^2 + 4\,\sinh\left(x^{-1}\right)+3\right)}$$

Cumulative Distribution Function

$$F(x) = 4\,1\mathrm{e}^{2\,x^{-1}} \left(\mathrm{e}^{4\,x^{-1}} - 4\,\mathrm{e}^{3\,x^{-1}} + 6\,\mathrm{e}^{2\,x^{-1}} + 4\,\mathrm{e}^{x^{-1}} + 1\right)^{-1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(\ln\left(RootOf\ \left(s\_Z^4 - 4\,s\_Z^3 + (6\,s - 4)\,\_Z^2 + 4\,s\_Z + s\right)\right)\right)^{-1}]$$

Survivor Function

$$S(x) = 1\left(\mathrm{e}^{4\,x^{-1}} - 4\,\mathrm{e}^{3\,x^{-1}} + 2\,\mathrm{e}^{2\,x^{-1}} + 4\,\mathrm{e}^{x^{-1}} + 1\right)\left(\mathrm{e}^{4\,x^{-1}} - 4\,\mathrm{e}^{3\,x^{-1}} + 6\,\mathrm{e}^{2\,x^{-1}} + 4\,\mathrm{e}^{x^{-1}} + 1\right)^{-1}$$

Hazard Function

$$h(x) = -2\,\frac{\left(-1 + \sinh\left(x^{-1}\right)\right)\cosh\left(x^{-1}\right)}{x^2\left(-\left(\cosh\left(x^{-1}\right)\right)^4 + 4\,\sinh\left(x^{-1}\right)\left(\cosh\left(x^{-1}\right)\right)^2 - 6\,\left(\cosh\left(x^{-1}\right)\right)^2 + 4\,\sinh\left(x^{-1}\right) + 3\right)}$$

Mean

$$mu = 2\int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \frac{\cosh\left(x^{-1}\right)\left(-1 + \sinh\left(x^{-1}\right)\right)}{x\left(\left(\cosh\left(x^{-1}\right)\right)^4 - 4\,\sinh\left(x^{-1}\right)\left(\cosh\left(x^{-1}\right)\right)^2 + 6\,\left(\cosh\left(x^{-1}\right)\right)^2 - 4\,\sinh\left(x^{-1}\right.\right.}$$

Variance

$$sigma^2 = 2\int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \frac{\cosh\left(x^{-1}\right)\left(-1 + \sinh\left(x^{-1}\right)\right)}{\left(\cosh\left(x^{-1}\right)\right)^4 - 4\,\sinh\left(x^{-1}\right)\left(\cosh\left(x^{-1}\right)\right)^2 + 6\,\left(\cosh\left(x^{-1}\right)\right)^2 - 4\,\sinh\left(x\right.}$$

Moment Function

$$m(x) = \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} -2\,\frac{x^r\left(-1 + \sinh\left(x^{-1}\right)\right)\cosh\left(x^{-1}\right)}{x^2\left(-\left(\cosh\left(x^{-1}\right)\right)^4 + 4\,\sinh\left(x^{-1}\right)\left(\cosh\left(x^{-1}\right)\right)^2 - 6\,\left(\cosh\left(x^{-1}\right)\right)^2 + 4\,\mathrm{s}\right.}$$

Moment Generating Function

$$2\int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \frac{\mathrm{e}^{tx}\cosh\left(x^{-1}\right)\left(-1 + \sinh\left(x^{-1}\right)\right)}{x^2\left(\left(\cosh\left(x^{-1}\right)\right)^4 - 4\,\sinh\left(x^{-1}\right)\left(\cosh\left(x^{-1}\right)\right)^2 + 6\,\left(\cosh\left(x^{-1}\right)\right)^2 - 4\,\sinh\left(x^{-1}\right) -\right.}$$

$$t \mapsto \left(\mathrm{csch}\,(t)\right)^{-1} + 1$$

Probability Distribution Function

$$f(x) = 2\,\frac{\operatorname{arccsch}\left((x-1)^{-1}\right)}{\sqrt{x^2-2\,x+2}\left(\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2+1\right)^2}$$

Cumulative Distribution Function

$$F(x) = 2\int_1^x \frac{\operatorname{arccsch}\left((t-1)^{-1}\right)}{\sqrt{t^2-2\,t+2}\left(\left(\operatorname{arccsch}\left((t-1)^{-1}\right)\right)^2+1\right)^2}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function
Survivor Function

$$S(x) = 1-2\int_1^x \frac{\operatorname{arccsch}\left((t-1)^{-1}\right)}{\sqrt{t^2-2\,t+2}\left(\left(\operatorname{arccsch}\left((t-1)^{-1}\right)\right)^2+1\right)^2}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -2\,\frac{\operatorname{arccsch}\left((x-1)^{-1}\right)}{\sqrt{x^2-2\,x+2}\left(\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2+1\right)^2}\left(-1+2\int_1^x \frac{\operatorname{arccsch}\left((t-1\right.}{\sqrt{t^2-2\,t+2}\left(\left(\operatorname{arccsch}\left((t\right.\right.\right.}\right.$$

Mean

$$mu = \infty$$

Variance

$$sigma^2 = undefined$$

Moment Function

$$m(x) = \infty$$

Moment Generating Function

$$\int_1^\infty 2\,\frac{e^{tx}\operatorname{arccsch}\left((x-1)^{-1}\right)}{\sqrt{x^2-2\,x+2}\left(\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2+1\right)^2}\,\mathrm{d}x_1$$

$$t \mapsto \tanh\left(t^{-1}\right)$$

Probability Distribution Function

$$f(x) = -2\,\frac{\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}$$

Cumulative Distribution Function

$$F(x) = \frac{(\operatorname{arctanh}(x))^2}{(\operatorname{arctanh}(x))^2+1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto -\tanh\left(\frac{\sqrt{-(s-1)\,s}}{s-1}\right)]$$

Survivor Function

$$S(x) = \left((\operatorname{arctanh}(x))^2+1\right)^{-1}$$

Hazard Function

$$h(x) = -2\,\frac{\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)(x^2-1)}$$

Mean

$$mu = -2\int_0^1 \frac{x\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}\,\mathrm{d}x$$

Variance

$$sigma^2 = -2\int_0^1 \frac{x^2\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}\,\mathrm{d}x - 4\left(\int_0^1 \frac{x\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}\,\mathrm{d}x\right)^2$$

Moment Function

$$m(x) = \int_0^1 -2\,\frac{x^r\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}\,\mathrm{d}x$$

Moment Generating Function

$$-2\int_0^1 \frac{\mathrm{e}^{tx}\operatorname{arctanh}(x)}{\left((\operatorname{arctanh}(x))^2+1\right)^2(x^2-1)}\,\mathrm{d}x_1$$

$$t \mapsto \operatorname{csch}\left(t^{-1}\right)$$

Probability Distribution Function

$$f(x) = 2\,\frac{\operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2+1\right)^2|x|}$$

Cumulative Distribution Function

$$F(x) = 2\int_0^x \frac{\operatorname{arccsch}(t)}{\sqrt{t^2+1}\left((\operatorname{arccsch}(t))^2+1\right)^2|t|}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function
Survivor Function

$$S(x) = 1 - 2\int_0^x \frac{\operatorname{arccsch}(t)}{\sqrt{t^2+1}\left((\operatorname{arccsch}(t))^2+1\right)^2|t|}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -2\,\frac{\operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2+1\right)^2|x|}\left(-1+2\int_0^x \frac{\operatorname{arccsch}(t)}{\sqrt{t^2+1}\left((\operatorname{arccsch}(t))^2+1\right)^2|t|}\,\mathrm{d}t\right)^{-1}$$

Mean

$$mu = \int_0^\infty 2\,\frac{\operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2+1\right)^2}\,\mathrm{d}x$$

Variance

$$sigma^2 = \infty - \left(\int_0^\infty 2\,\frac{\operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2+1\right)^2}\,\mathrm{d}x\right)^2$$

Moment Function

$$m(x) = \int_0^\infty 2\,\frac{x^r\operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2+1\right)^2|x|}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^\infty 2\,\frac{\mathrm{e}^{tx}\operatorname{arccsch}(x)}{\sqrt{x^2+1}\left((\operatorname{arccsch}(x))^2+1\right)^2 x}\,\mathrm{d}x_1$$

$$t \mapsto \operatorname{arccsch}\left(t^{-1}\right)$$

Probability Distribution Function

$$f(x) = 2\,\frac{\sinh(x)}{(\cosh(x))^3}$$

Cumulative Distribution Function

$$F(x) = \frac{e^{4\,x} - 2\,e^{2\,x} + 1}{e^{4\,x} + 2\,e^{2\,x} + 1}$$

Inverse Cumulative Distribution Function

$$[s \mapsto 1/2\,\ln\left(-\frac{s + 1 + 2\,\sqrt{s}}{-1 + s}\right)]$$

Survivor Function

$$S(x) = 4\,\frac{e^{2\,x}}{e^{4\,x} + 2\,e^{2\,x} + 1}$$

Hazard Function

$$h(x) = 1/2\,\frac{\sinh(x)\,(e^{2\,x} + 2 + e^{-2\,x})}{(\cosh(x))^3}$$

Mean

$$mu = 1$$

Variance

$$sigma^2 = 2\,\ln(2) - 1$$

Moment Function

$$m(x) = \int_0^\infty 2\,\frac{x^r \sinh(x)}{(\cosh(x))^3}\,dx$$

Moment Generating Function

$$\int_0^\infty 2\,\frac{e^{tx}\sinh(x)}{(\cosh(x))^3}\,dx_1$$