"ChiSquareRV(3)"

$$[x \mapsto 1/2\,\frac{\sqrt{x}\mathrm{e}^{-x/2}\sqrt{2}}{\sqrt{\pi}}]$$

$$t \mapsto t^2$$

Probability Distribution Function

$$f(x) = 1/4\,\frac{\mathrm{e}^{-1/2\,\sqrt{x}}\sqrt{2}}{\sqrt[4]{x}\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = \frac{\mathrm{erf}\left(1/2\,\sqrt[4]{x}\sqrt{2}\right)\sqrt{\pi} - \sqrt[4]{x}\sqrt{2}\mathrm{e}^{-1/2\,\sqrt{x}}}{\sqrt{\pi}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = -\frac{-\sqrt[4]{x}\sqrt{2}\mathrm{e}^{-1/2\,\sqrt{x}} + \mathrm{erf}\left(1/2\,\sqrt[4]{x}\sqrt{2}\right)\sqrt{\pi} - \sqrt{\pi}}{\sqrt{\pi}}$$

Hazard Function

$$h(x) = -1/4\,\frac{\mathrm{e}^{-1/2\,\sqrt{x}}\sqrt{2}}{\sqrt[4]{x}\left(-\sqrt[4]{x}\sqrt{2}\mathrm{e}^{-1/2\,\sqrt{x}} + \mathrm{erf}\left(1/2\,\sqrt[4]{x}\sqrt{2}\right)\sqrt{\pi} - \sqrt{\pi}\right)}$$

Mean

$$\mu = 15$$

Variance

$$\sigma^2 = 720$$

Moment Function

$$m(x) = 1/4\,\frac{\sqrt{2}}{\sqrt{\pi}}\left(8\,\frac{\sqrt{2}\Gamma\left(2\,r + 1/2\right)r}{\left((1/2)^r\right)^2} + 2\,\frac{\sqrt{2}\Gamma\left(2\,r + 1/2\right)}{\left((1/2)^r\right)^2}\right)$$

Moment Generating Function

$$-1/32\,\frac{1}{(-t)^{7/4}\sqrt{\pi}}\mathrm{e}^{-1/32\,t^{-1}}\left(K_{1/4}\left(-1/32\,t^{-1}\right)-K_{3/4}\left(-1/32\,t^{-1}\right)\right)\frac{1}{\sqrt[4]{-t^{-1}}}{}_{1}$$

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

Probability Distribution Function

$$f(x)=\frac{x\mathrm{e}^{-1/2\,x^2}\sqrt{2}\,|x|}{\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x)=\frac{\mathrm{erf}\left(1/2\,x\sqrt{2}\right)\sqrt{\pi}-x\sqrt{2}\mathrm{e}^{-1/2\,x^2}}{\sqrt{\pi}}$$

Inverse Cumulative Distribution Function

$$F^{-1}=[s\mapsto \mathit{RootOf}\left(\_Z\,\sqrt{2}\mathrm{e}^{-1/2\,\_Z^2}-\mathrm{erf}\left(1/2\,\_Z\,\sqrt{2}\right)\sqrt{\pi}+s\sqrt{\pi}\right)]$$

Survivor Function

$$S(x)=\frac{x\sqrt{2}\mathrm{e}^{-1/2\,x^2}-\mathrm{erf}\left(1/2\,x\sqrt{2}\right)\sqrt{\pi}+\sqrt{\pi}}{\sqrt{\pi}}$$

Hazard Function

$$h(x)=-\frac{x\sqrt{2}\mathrm{e}^{-1/2\,x^2}\,|x|}{-x\sqrt{2}\mathrm{e}^{-1/2\,x^2}+\mathrm{erf}\left(1/2\,x\sqrt{2}\right)\sqrt{\pi}-\sqrt{\pi}}$$

Mean

$$\mu=2\,\frac{\sqrt{2}}{\sqrt{\pi}}$$

Variance

$$\sigma^2=3-8\,\pi^{-1}$$

Moment Function

$$m(x)=\int_0^{\infty}\frac{x^r x\mathrm{e}^{-1/2\,x^2}\sqrt{2}\,|x|}{\sqrt{\pi}}\,\mathrm{d}x$$

Moment Generating Function

$$\frac{t^2\sqrt{\pi}\mathrm{e}^{1/2\,t^2}\mathrm{erf}\left(1/2\,t\sqrt{2}\right)+t^2\sqrt{\pi}\mathrm{e}^{1/2\,t^2}+\sqrt{\pi}\mathrm{e}^{1/2\,t^2}\mathrm{erf}\left(1/2\,t\sqrt{2}\right)+\sqrt{\pi}\mathrm{e}^{1/2\,t^2}+t\sqrt{2}}{\sqrt{\pi}}_{1}$$

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{x^{-1}}\sqrt{2}}{\sqrt{\pi}x^2}\mathrm{e}^{-1/2\,x^{-1}}$$

Cumulative Distribution Function

$$F(x) = -\frac{1}{\sqrt{x}\sqrt{\pi}}\left(\mathrm{erf}\left(1/2\,\frac{\sqrt{2}}{\sqrt{x}}\right)\sqrt{x}\sqrt{\pi}-\sqrt{x}\sqrt{\pi}-\sqrt{2}\mathrm{e}^{-1/2\,x^{-1}}\right)$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \frac{1}{\sqrt{x}\sqrt{\pi}}\left(\mathrm{erf}\left(1/2\,\frac{\sqrt{2}}{\sqrt{x}}\right)\sqrt{x}\sqrt{\pi}-\sqrt{2}\mathrm{e}^{-1/2\,x^{-1}}\right)$$

Hazard Function

$$h(x) = 1/2\,\frac{\sqrt{x^{-1}}\sqrt{2}}{x^{3/2}}\mathrm{e}^{-1/2\,x^{-1}}\left(\mathrm{erf}\left(1/2\,\frac{\sqrt{2}}{\sqrt{x}}\right)\sqrt{x}\sqrt{\pi}-\sqrt{2}\mathrm{e}^{-1/2\,x^{-1}}\right)^{-1}$$

Mean

$$\mu = 1$$

Variance

$$\sigma^2 = \infty$$

Moment Function

$$m(x) = \frac{2^{-r+1}\Gamma\left(3/2-r\right)}{\sqrt{\pi}}$$

Moment Generating Function

$$\frac{e^{-\sqrt{-t}\sqrt{2}}\left(-t\sqrt{2}+\sqrt{-t}\right)}{\sqrt{-t}}_{1}$$

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = \begin{cases} \frac{\sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\tan(x)}\sqrt{2}\right)-\sqrt{2}\sqrt{\tan(x)}e^{-1/2\,\tan(x)}}{\sqrt{\pi}} & x \leq \pi/2 \\ \frac{i\infty+\Re\left(\sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\tan(x)}\sqrt{2}\right)-\sqrt{2}\sqrt{\tan(x)}e^{-1/2\,\tan(x)}\right)}{\sqrt{\pi}} & \pi/2 < x \end{cases}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \mathit{RootOf}\left(\sqrt{2}\sqrt{\tan(\_Z)}e^{-1/2\,\tan(\_Z)} - \sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\tan(\_Z)}\sqrt{2}\right) + s\sqrt{\pi}\right)]$$

Survivor Function

$$S(x) = \begin{cases} -\frac{-\sqrt{2}\sqrt{\tan(x)}e^{-1/2\,\tan(x)}+\sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\tan(x)}\sqrt{2}\right)-\sqrt{\pi}}{\sqrt{\pi}} & x \leq \pi/2 \\ -\frac{i\infty-\sqrt{\pi}+\Re\left(\sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\tan(x)}\sqrt{2}\right)-\sqrt{2}\sqrt{\tan(x)}e^{-1/2\,\tan(x)}\right)}{\sqrt{\pi}} & \pi/2 < x \end{cases}$$

Hazard Function

$$h(x) = \begin{cases} -1/2\,\frac{\sqrt{2}\sqrt{\tan(x)}e^{-1/2\,\tan(x)}\left(1+(\tan(x))^2\right)}{-\sqrt{2}\sqrt{\tan(x)}e^{-1/2\,\tan(x)}+\sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\tan(x)}\sqrt{2}\right)-\sqrt{\pi}} & x \leq \pi/2 \\ 0 & \pi/2 < x \end{cases}$$

Mean

$$\mu = \pi\,\left(\mathit{FresnelS}\left(\frac{1}{\sqrt{\pi}}\right)\right)^2+\pi\,\left(\mathit{FresnelC}\left(\frac{1}{\sqrt{\pi}}\right)\right)^2-2\,\mathit{FresnelS}\left(\frac{1}{\sqrt{\pi}}\right)\sin(1/2)\sqrt{\pi}-2\,\cos(1/$$

Variance

$$\sigma^2 = -\pi^2 \left(FresnelC \left(\frac{1}{\sqrt{\pi}} \right) \right)^4 + 1/4\, \frac{\left(8\,\pi^{5/2} + 16\,\pi^2 \cos(1/2)\right) \left(FresnelC \left(\frac{1}{\sqrt{\pi}} \right) \right)^3}{\sqrt{\pi}} + \left(-2\,\pi^2 \left(Fr \right.\right.$$

Moment Function

$$m(x) = \int_0^{\pi/2} 1/2\, \frac{x^r \sqrt{\tan(x)} \mathrm{e}^{-1/2\,\tan(x)} \sqrt{2} \left(1 + (\tan(x))^2\right)}{\sqrt{\pi}}\, \mathrm{d}x$$

Moment Generating Function

$$\frac{1/2\, \frac{\sqrt{2} \int_0^{\pi/2} \sqrt{\tan(x)} \left(1 + (\tan(x))^2\right) \mathrm{e}^{tx - 1/2\,\tan(x)}\, \mathrm{d}x}{\sqrt{\pi}}_{1}}{}$$

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

Probability Distribution Function

$$f(x) = 1/2\, \frac{\sqrt{\ln(x)} \sqrt{2}}{x^{3/2} \sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = 1/2\, \frac{\sqrt{2} \left(\sqrt{\pi} \sqrt{2} \mathrm{erf} \left(1/2 \sqrt{\ln(x)} \sqrt{2} \right) \sqrt{x} - 2 \sqrt{\ln(x)} \right)}{\sqrt{x} \sqrt{\pi}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = -\frac{\sqrt{\pi} \mathrm{erf} \left(1/2 \sqrt{\ln(x)} \sqrt{2} \right) \sqrt{x} - \sqrt{x} \sqrt{\pi} - \sqrt{\ln(x)} \sqrt{2}}{\sqrt{x} \sqrt{\pi}}$$

Hazard Function

$$h(x) = -1/2\, \frac{\sqrt{\ln(x)} \sqrt{2}}{x \left(\sqrt{\pi} \mathrm{erf} \left(1/2 \sqrt{\ln(x)} \sqrt{2} \right) \sqrt{x} - \sqrt{x} \sqrt{\pi} - \sqrt{\ln(x)} \sqrt{2} \right)}$$

Mean

$$\mu = \infty$$

Variance

$$\sigma^2 = \mathit{undefined}$$

Moment Function

$$m(x) = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\lim_{\_u\to\infty} -2\,\frac{-\sqrt{\_u}\mathrm{e}^{1/2\,(2\,r-1)\_u}\sqrt{-4\,r+2}+\sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{-4\,r+2}\sqrt{\_u}\right)}{(2\,r-1)\sqrt{-4\,r+2}}$$

Moment Generating Function

$$\int_1^{\infty} 1/2\,\frac{\mathrm{e}^{tx}\sqrt{\ln(x)}\sqrt{2}}{x^{3/2}\sqrt{\pi}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{2}\mathrm{e}^{3/2\,x-1/2\,\mathrm{e}^x}}{\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = \int_{-\infty}^{x} 1/2\,\frac{\sqrt{2}\mathrm{e}^{3/2\,t-1/2\,\mathrm{e}^t}}{\sqrt{\pi}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1 - \int_{-\infty}^{x} 1/2\,\frac{\sqrt{2}\mathrm{e}^{3/2\,t-1/2\,\mathrm{e}^t}}{\sqrt{\pi}}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -1/2\,\frac{\sqrt{2}\mathrm{e}^{3/2\,x-1/2\,\mathrm{e}^x}}{\sqrt{\pi}}\left(-1+\int_{-\infty}^{x} 1/2\,\frac{\sqrt{2}\mathrm{e}^{3/2\,t-1/2\,\mathrm{e}^t}}{\sqrt{\pi}}\,\mathrm{d}t\right)^{-1}$$

Mean

$$\mu = \int_{-\infty}^{\infty} 1/2\,{\frac {x\sqrt {2}{{\rm e}^{3/2\,x-1/2\,{{\rm e}^{x}}}}}{\sqrt {\pi }}}\,{\rm d}x$$

Variance

$$\sigma^2 = \int_{-\infty}^{\infty} 1/2\,{\frac {{x}^{2}\sqrt {2}{{\rm e}^{3/2\,x-1/2\,{{\rm e}^{x}}}}}{\sqrt {\pi }}}\,{\rm d}x - \left(\int_{-\infty}^{\infty} 1/2\,{\frac {x\sqrt {2}{{\rm e}^{3/2\,x-1/2\,{{\rm e}^{x}}}}}{\sqrt {\pi }}}\,{\rm d}x \right)^2$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} 1/2\,{\frac {{x}^{r}\sqrt {2}{{\rm e}^{3/2\,x-1/2\,{{\rm e}^{x}}}}}{\sqrt {\pi }}}\,{\rm d}x$$

Moment Generating Function

$$\int_{-\infty}^{\infty} 1/2\,{\frac {\sqrt {2}{{\rm e}^{tx+3/2\,x-1/2\,{{\rm e}^{x}}}}}{\sqrt {\pi }}}\,{\rm d}x_1$$

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

Probability Distribution Function

$$f(x) = 1/2\,{\frac {\sqrt {-\ln \left(x \right) }\sqrt {2}}{\sqrt {x}\sqrt {\pi }}}$$

Cumulative Distribution Function

$$F(x) = -1/2\,{\frac {\sqrt {2} \left(\sqrt {\pi }\sqrt {2}{\rm erf} \left(1/2\,\sqrt {-\ln \left(x \right) }\sqrt {2}\right)-\sqrt {\pi }\sqrt {2}-2\,\sqrt {-\ln \left(x \right) }\sqrt {x} \right) }{\sqrt {\pi }}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = {\frac {-\sqrt {2}\sqrt {-\ln \left(x \right) }\sqrt {x}+\sqrt {\pi }{\rm erf} \left(1/2\,\sqrt {-\ln \left(x \right) }\sqrt {2}\right)}{\sqrt {\pi }}}$$

Hazard Function

$$h(x) = -1/2\,\frac{\sqrt{-\ln(x)}\sqrt{2}}{\sqrt{x}\left(\sqrt{2}\sqrt{-\ln(x)}\sqrt{x} - \sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{-\ln(x)}\sqrt{2}\right)\right)}$$

Mean

$$\mu = 1/9\,\sqrt{3}$$

Variance

$$\sigma^2 = 1/25\,\sqrt{5} - 1/27$$

Moment Function

$$m(x) = \frac{\sqrt{2}}{(2\,r+1)\,\sqrt{4\,r+2}}$$

Moment Generating Function

$$1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^1 \frac{\mathrm{e}^{tx}\sqrt{-\ln(x)}}{\sqrt{x}}\,\mathrm{d}x$$

1

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{2}\mathrm{e}^{-3/2\,x-1/2\,\mathrm{e}^{-x}}}{\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = \int_{-\infty}^{x} 1/2\,\frac{\sqrt{2}\mathrm{e}^{-3/2\,t-1/2\,\mathrm{e}^{-t}}}{\sqrt{\pi}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1 - \int_{-\infty}^{x} 1/2\,\frac{\sqrt{2}\mathrm{e}^{-3/2\,t-1/2\,\mathrm{e}^{-t}}}{\sqrt{\pi}}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -1/2\,\frac{\sqrt{2}e^{-3/2\,x-1/2\,e^{-x}}}{\sqrt{\pi}}\left(-1+\int_{-\infty}^{x}1/2\,\frac{\sqrt{2}e^{-3/2\,t-1/2\,e^{-t}}}{\sqrt{\pi}}\,dt\right)^{-1}$$

Mean

$$\mu = \int_{-\infty}^{\infty}1/2\,\frac{x\sqrt{2}e^{-3/2\,x-1/2\,e^{-x}}}{\sqrt{\pi}}\,dx$$

Variance

$$\sigma^2 = \int_{-\infty}^{\infty}1/2\,\frac{x^2\sqrt{2}e^{-3/2\,x-1/2\,e^{-x}}}{\sqrt{\pi}}\,dx - \left(\int_{-\infty}^{\infty}1/2\,\frac{x\sqrt{2}e^{-3/2\,x-1/2\,e^{-x}}}{\sqrt{\pi}}\,dx\right)^2$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty}1/2\,\frac{x^r\sqrt{2}e^{-3/2\,x-1/2\,e^{-x}}}{\sqrt{\pi}}\,dx$$

Moment Generating Function

$$\int_{-\infty}^{\infty}1/2\,\frac{\sqrt{2}e^{tx-3/2\,x-1/2\,e^{-x}}}{\sqrt{\pi}}\,dx_1$$

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{e^x-1}\sqrt{2}e^{-1/2\,e^x+1/2+x}}{\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = 1/2\,\frac{\sqrt{2}\left(\sqrt{\pi}\sqrt{2}\operatorname{erf}\left(1/2\,\sqrt{e^x-1}\sqrt{2}\right) - 2\,\sqrt{e^x-1}e^{-1/2\,e^x+1/2}\right)}{\sqrt{\pi}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \frac{\sqrt{2}\sqrt{\mathrm{e}^{x}-1}\mathrm{e}^{-1/2\,\mathrm{e}^{x}+1/2} - \sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\mathrm{e}^{x}-1}\sqrt{2}\right) + \sqrt{\pi}}{\sqrt{\pi}}$$

Hazard Function

$$h(x) = -1/2\,\frac{\sqrt{\mathrm{e}^{x}-1}\sqrt{2}\mathrm{e}^{-1/2\,\mathrm{e}^{x}+1/2+x}}{-\sqrt{2}\sqrt{\mathrm{e}^{x}-1}\mathrm{e}^{-1/2\,\mathrm{e}^{x}+1/2} + \sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{\mathrm{e}^{x}-1}\sqrt{2}\right) - \sqrt{\pi}}$$

Mean

$$\mu = \int_0^\infty 1/2\,\frac{x\sqrt{2}\sqrt{\mathrm{e}^{x}-1}\mathrm{e}^{-1/2\,\mathrm{e}^{x}+1/2+x}}{\sqrt{\pi}}\,\mathrm{d}x$$

Variance

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

Moment Function

$$m(x) = \int_0^\infty 1/2\,\frac{x^r\sqrt{2}\sqrt{\mathrm{e}^{x}-1}\mathrm{e}^{-1/2\,\mathrm{e}^{x}+1/2+x}}{\sqrt{\pi}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^\infty 1/2\,\frac{\sqrt{2}\sqrt{\mathrm{e}^{x}-1}\mathrm{e}^{tx-1/2\,\mathrm{e}^{x}+1/2+x}}{\sqrt{\pi}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{\mathrm{e}^{x^{-1}}-2}\sqrt{2}}{\sqrt{\pi}x^2}\mathrm{e}^{-1/2\,\frac{\mathrm{e}^{x^{-1}}x-2\,x-2}{x}}$$

Cumulative Distribution Function

$$F(x) = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^x \frac{\sqrt{\mathrm{e}^{t^{-1}}-2}}{t^2}\mathrm{e}^{-1/2\,\frac{\mathrm{e}^{t^{-1}}t-2\,t-2}{t}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -1/2\,\frac{1}{\sqrt{\pi}}\left(\sqrt{2}\int_0^x \frac{\sqrt{e^{t^{-1}}-2}}{t^2} e^{-1/2\,\frac{e^{t^{-1}}t-2\,t-2}{t}}\,dt - 2\,\sqrt{\pi}\right)$$

Hazard Function

$$h(x) = \frac{\sqrt{e^{x^{-1}}-2}\sqrt{2}}{x^2} e^{-1/2\,\frac{e^{x^{-1}}x-2\,x-2}{x}}\left(-\sqrt{2}\int_0^x \frac{\sqrt{e^{t^{-1}}-2}}{t^2} e^{-1/2\,\frac{e^{t^{-1}}t-2\,t-2}{t}}\,dt + 2\,\sqrt{\pi}\right)^{-1}$$

Mean

$$\mu = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^{(\ln(2))^{-1}} \frac{\sqrt{e^{x^{-1}}-2}}{x} e^{-1/2\,\frac{e^{x^{-1}}x-2\,x-2}{x}}\,dx$$

Variance

$$\sigma^2 = 1/2\,\frac{1}{\pi^{3/2}}\left(\sqrt{2}\int_0^{(\ln(2))^{-1}} \sqrt{e^{x^{-1}}-2}\,e^{-1/2\,\frac{e^{x^{-1}}x-2\,x-2}{x}}\,dx\pi - \left(\int_0^{(\ln(2))^{-1}} \frac{\sqrt{e^{x^{-1}}-2}}{x} e^{-1/2\,\frac{e^{x^{-1}}x-2\,x}{x}}\right.\right.$$

Moment Function

$$m(x) = \int_0^{(\ln(2))^{-1}} 1/2\,\frac{x^r\sqrt{2}\sqrt{e^{x^{-1}}-2}}{\sqrt{\pi}x^2} e^{-1/2\,\frac{e^{x^{-1}}x-2\,x-2}{x}}\,dx$$

Moment Generating Function

$$1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^{(\ln(2))^{-1}} \frac{\sqrt{e^{x^{-1}}-2}}{x^2} e^{-1/2\,\frac{-2\,tx^2+e^{x^{-1}}x-2\,x-2}{x}}\,dx$$

1

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

Probability Distribution Function

$$f(x) = -1/2\,\frac{\sqrt{\operatorname{arctanh}(x)}\sqrt{2}}{\sqrt{\pi}\,(x^2-1)}\,\frac{1}{\sqrt{\frac{x+1}{\sqrt{-x^2+1}}}}$$

Cumulative Distribution Function

$$F(x) = -1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^x \frac{\sqrt{\operatorname{arctanh}(t)}}{t^2-1}\frac{1}{\sqrt{\frac{t+1}{\sqrt{-t^2+1}}}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

$$\mu = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^1 \frac{x\sqrt{\operatorname{arctanh}(x)}}{\sqrt{x+1}\left(-x^2+1\right)^{3/4}}\,\mathrm{d}x$$

Variance

$$\sigma^2 = 1/2\,\frac{1}{\pi^{3/2}}\left(\sqrt{2}\int_0^1 \frac{x^2\sqrt{\operatorname{arctanh}(x)}}{\sqrt{x+1}\left(-x^2+1\right)^{3/4}}\,\mathrm{d}x\pi - \left(\int_0^1 \frac{x\sqrt{\operatorname{arctanh}(x)}}{\sqrt{x+1}\left(-x^2+1\right)^{3/4}}\,\mathrm{d}x\right)^2\sqrt{\pi}\right)$$

Moment Function

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

Moment Generating Function

$$1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^1 \frac{\mathrm{e}^{tx}\sqrt{\operatorname{arctanh}(x)}}{\sqrt{x+1}\left(-x^2+1\right)^{3/4}}\,\mathrm{d}x_{1}$$

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^x \frac{\sqrt{\operatorname{arcsinh}(t)}}{\sqrt{t+\sqrt{t^2+1}}\sqrt{t^2+1}}\,dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1/2\,\frac{1}{\sqrt{\pi}}\left(-\sqrt{2}\int_0^x \frac{\sqrt{\operatorname{arcsinh}(t)}}{\sqrt{t+\sqrt{t^2+1}}\sqrt{t^2+1}}\,dt + 2\sqrt{\pi}\right)$$

Hazard Function

$$h(x) = \frac{\sqrt{\operatorname{arcsinh}(x)}\sqrt{2}}{\sqrt{x+\sqrt{x^2+1}}\sqrt{x^2+1}}\left(-\sqrt{2}\int_0^x \frac{\sqrt{\operatorname{arcsinh}(t)}}{\sqrt{t+\sqrt{t^2+1}}\sqrt{t^2+1}}\,dt + 2\sqrt{\pi}\right)^{-1}$$

Mean

$$\mu = \infty$$

Variance

$$\sigma^2 = \mathit{undefined}$$

Moment Function

$$m(x) = \int_0^\infty 1/2\,\frac{x^r\sqrt{\operatorname{arcsinh}(x)}\sqrt{2}}{\sqrt{x+\sqrt{x^2+1}}\sqrt{\pi}\sqrt{x^2+1}}\,dx$$

Moment Generating Function

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

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\sqrt{2}\cosh(x)}{\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = \frac{\operatorname{erf}\left(1/2\,\sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-x/2}\right)\sqrt{\pi} - \sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-x/2+1/4\,\mathrm{e}^{-x}-1/4\,\mathrm{e}^{x}}}{\sqrt{\pi}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = -\frac{\operatorname{erf}\left(1/2\,\sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-x/2}\right)\sqrt{\pi} - \sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-1/4\,\left(\mathrm{e}^{2\,x}+2\,x\mathrm{e}^{x}-1\right)\mathrm{e}^{-x}} - \sqrt{\pi}}{\sqrt{\pi}}$$

Hazard Function

$$h(x) = -1/2\,\frac{\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\sqrt{2}\cosh(x)}{\operatorname{erf}\left(1/2\,\sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-x/2}\right)\sqrt{\pi} - \sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-1/4\,(\mathrm{e}^{2\,x}+2\,x\mathrm{e}^{x}-1)\mathrm{e}^{-x}} - \sqrt{\pi}}$$

Mean

$$\mu = \int_0^\infty 1/2\,\frac{x\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\sqrt{2}\cosh(x)}{\sqrt{\pi}}\,\mathrm{d}x$$

Variance

$$\sigma^2 = \int_0^\infty 1/2\,\frac{x^2\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\sqrt{2}\cosh(x)}{\sqrt{\pi}}\,\mathrm{d}x - \left(\int_0^\infty 1/2\,\frac{x\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\sqrt{2}\cosh(x}{\sqrt{\pi}}\right.$$

Moment Function

$$m(x) = \int_0^\infty 1/2\,\frac{x^r\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\sqrt{2}\cosh(x)}{\sqrt{\pi}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^{\infty} 1/2\,\frac{\sqrt{\sinh(x)}\sqrt{2}\cosh(x)\,\mathrm{e}^{tx-1/2\,\sinh(x)}}{\sqrt{\pi}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{-1+\operatorname{arccsch}(x)}\mathrm{e}^{1/2-1/2\,\operatorname{arccsch}(x)}\sqrt{2}}{\sqrt{\pi}\sqrt{x^2+1}\,|x|}$$

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{2}\cosh(x)}{\sqrt{\pi}\,(\sinh(x))^2}\sqrt{-\frac{\sinh(x)-1}{\sinh(x)}}\mathrm{e}^{1/2\,\frac{\sinh(x)-1}{\sinh(x)}}$$

Cumulative Distribution Function

$$F(x) = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^x \frac{\cosh(t)}{(\sinh(t))^2}\sqrt{-\frac{\sinh(t)-1}{\sinh(t)}}\mathrm{e}^{1/2\,\frac{\sinh(t)-1}{\sinh(t)}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1/2\,\frac{1}{\sqrt{\pi}}\left(-\sqrt{2}\int_0^x \frac{\cosh(t)}{(\sinh(t))^2}\sqrt{-\frac{\sinh(t)-1}{\sinh(t)}}\mathrm{e}^{1/2\,\frac{\sinh(t)-1}{\sinh(t)}}\,\mathrm{d}t + 2\sqrt{\pi}\right)$$

Hazard Function

$$h(x) = \frac{\sqrt{2}\cosh(x)}{(\sinh(x))^2}\sqrt{-\frac{\sinh(x)-1}{\sinh(x)}}\mathrm{e}^{1/2\,\frac{\sinh(x)-1}{\sinh(x)}}\left(-\sqrt{2}\int_0^x \frac{\cosh(t)}{(\sinh(t))^2}\sqrt{-\frac{\sinh(t)-1}{\sinh(t)}}\mathrm{e}^{1/2\,\frac{\sinh(t)-1}{\sinh(t)}}\,\mathrm{d}\right.$$

Mean

$$\mu = \frac{\sqrt{2}}{\sqrt{\pi}} \int_0^{\ln\left(1+\sqrt{2}\right)} \frac{x \cosh(x) \sqrt{-\sinh(x)+1}}{\sqrt{\sinh(x)}\,(-1+\cosh(2\,x))} \mathrm{e}^{1/2\,\frac{\sinh(x)-1}{\sinh(x)}}\,\mathrm{d}x$$

Variance

$$\sigma^2 = \frac{1}{\pi^{3/2}} \left(\sqrt{2} \int_0^{\ln\left(1+\sqrt{2}\right)} \frac{x^2 \cosh(x) \sqrt{-\sinh(x)+1}}{\sqrt{\sinh(x)}\,(-1+\cosh(2\,x))} \mathrm{e}^{1/2\,\frac{\sinh(x)-1}{\sinh(x)}}\,\mathrm{d}x\pi - 2 \left(\int_0^{\ln\left(1+\sqrt{2}\right)} \frac{x \cosh(x}{\sqrt{\sinh(x}} \right.\right.$$

Moment Function

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

Moment Generating Function

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

1

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

$$h(x) = -\frac{\sqrt{-1+\operatorname{arctanh}(x^{-1})}\,\mathrm{e}^{1/2-1/2\operatorname{arctanh}\left(x^{-1}\right)}\sqrt{2}}{x^2-1}\Bigg(\sqrt{2}\int_1^x \frac{\sqrt{-1+\operatorname{arctanh}(t^{-1})}\,\mathrm{e}^{1/2-1/2\operatorname{arctan}}}{t^2-1}$$

Mean

$$\mu = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{x\sqrt{-1+\operatorname{arctanh}(x^{-1})}\,\mathrm{e}^{1/2-1/2\operatorname{arctanh}\left(x^{-1}\right)}}{x^2-1}\,\mathrm{d}x$$

Variance

$$\sigma^2 = 1/2\,\frac{1}{\pi^{3/2}}\Bigg(\sqrt{2}\int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{x^2\sqrt{-1+\operatorname{arctanh}(x^{-1})}\,\mathrm{e}^{1/2-1/2\operatorname{arctanh}\left(x^{-1}\right)}}{x^2-1}\,\mathrm{d}x\pi - \Bigg(\int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{x\sqrt{-1+\mathrm{ar}}}{}$$

Moment Function

$$m(x) = \int_1^{\frac{\mathrm{e}+\mathrm{e}^{-1}}{\mathrm{e}-\mathrm{e}^{-1}}} 1/2\,\frac{x^r\sqrt{-1+\operatorname{arctanh}(x^{-1})}\,\mathrm{e}^{1/2-1/2\operatorname{arctanh}\left(x^{-1}\right)}\sqrt{2}}{\sqrt{\pi}\,(x^2-1)}\,\mathrm{d}x$$

Moment Generating Function

$$1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{\sqrt{-1+\operatorname{arctanh}(x^{-1})}\,\mathrm{e}^{tx+1/2-1/2\operatorname{arctanh}\left(x^{-1}\right)}}{x^2-1}\,\mathrm{d}x$$ [1]

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

$$\sigma^2 = 1/2\,\frac{1}{\pi^{3/2}}\left(\sqrt{2}\int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{x\sqrt{-1+\operatorname{arcsinh}(x^{-1})}\mathrm{e}^{1/2-1/2\operatorname{arcsinh}\left(x^{-1}\right)}}{\sqrt{x^2+1}}\,\mathrm{d}x\pi - \left(\int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{\sqrt{-1+\operatorname{arc}}}{}\right.\right.$$

Moment Function

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

Moment Generating Function

$$1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{\sqrt{-1+\operatorname{arcsinh}(x^{-1})}\mathrm{e}^{tx+1/2-1/2\operatorname{arcsinh}\left(x^{-1}\right)}}{\sqrt{x^2+1}x}\,\mathrm{d}x$$ [1]

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{-1+\sinh(x^{-1})}\mathrm{e}^{1/2-1/2\,\sinh\left(x^{-1}\right)}\sqrt{2}\cosh(x^{-1})}{\sqrt{\pi}x^2}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}}\left(\mathrm{e}^{1/4\,\frac{1}{x}\left(2\,x-2+\mathrm{e}^{-x^{-1}}x-\mathrm{e}^{x^{-1}}x\right)}\sqrt{\mathrm{e}^{2\,x^{-1}}-2\,\mathrm{e}^{x^{-1}}-1} - \operatorname{erf}\left(1/2\,\mathrm{e}^{-1/2\,x^{-1}}\sqrt{\mathrm{e}^{2\,x^{-1}}-2\,\mathrm{e}^{x^{-1}}-}\right.\right.$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto RootOf \left(-e^{1/4 \frac{1}{\_Z} \left(-e^{2\,\_Z^{-1}}\_Z + 2\,e^{\_Z^{-1}}\_Z - 2\,e^{\_Z^{-1}} + \_Z \right) e^{-\_Z^{-1}}} \sqrt{e^{2\,\_Z^{-1}} - 2\,e^{\_Z^{-1}} - 1} + \mathrm{erf} \left(\right.\right.$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\mathrm{erf} \left(1/2\,e^{-1/2\,x^{-1}} \sqrt{e^{2\,x^{-1}} - 2\,e^{x^{-1}} - 1} \right) \sqrt{\pi} - e^{-1/4 \frac{1}{x} \left(e^{2\,x^{-1}} x - 2\,e^{x^{-1}} x + 2\,e^{x^{-1}} - x \right) e^{-x^{-1}}} \sqrt{e\right.$$

Hazard Function

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

Mean

$$\mu = 1/2 \frac{\sqrt{2}}{\sqrt{\pi}} \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \frac{\sqrt{-1 + \sinh(x^{-1})} e^{1/2 - 1/2 \sinh\left(x^{-1}\right)} \cosh(x^{-1})}{x} \, dx$$

Variance

$$\sigma^2 = 1/2 \frac{1}{\pi^{3/2}} \left(\sqrt{2} \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \sqrt{-1 + \sinh(x^{-1})} e^{1/2 - 1/2 \sinh\left(x^{-1}\right)} \cosh\left(x^{-1}\right) \, dx\pi - \left(\int_0^{\left(\ln\left(1+\right.\right.} \right.\right.$$

Moment Function

$$m(x) = \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} 1/2 \frac{x^r \sqrt{-1 + \sinh(x^{-1})} e^{1/2 - 1/2 \sinh\left(x^{-1}\right)} \sqrt{2} \cosh(x^{-1})}{\sqrt{\pi} x^2} \, dx$$

Moment Generating Function

$$1/2 \frac{\sqrt{2}}{\sqrt{\pi}} \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \frac{\sqrt{-1 + \sinh(x^{-1})} \cosh(x^{-1}) e^{tx + 1/2 - 1/2 \sinh\left(x^{-1}\right)}}{x^2} \, dx$$ [1]

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

$$\mu = \infty$$

Variance

$$\sigma^2 = \mathit{undefined}$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

$$f(x) = -1/2\,\frac{\sqrt{\left(\operatorname{arctanh}(x)\right)^{-1}}\sqrt{2}}{\sqrt{\pi}\left(\operatorname{arctanh}(x)\right)^{2}(x^2-1)}\mathrm{e}^{-1/2\,(\operatorname{arctanh}(x))^{-1}}$$

Cumulative Distribution Function

$$F(x) = -1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^x \frac{\sqrt{\left(\operatorname{arctanh}(t)\right)^{-1}}}{\left(\operatorname{arctanh}(t)\right)^{2}(t^2-1)}\mathrm{e}^{-1/2\,(\operatorname{arctanh}(t))^{-1}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

$$h(x) = -\frac{\sqrt{\left(\operatorname{arctanh}(x)\right)^{-1}}\sqrt{2}}{\left(\operatorname{arctanh}(x)\right)^{2}(x^2-1)}\mathrm{e}^{-1/2\,(\operatorname{arctanh}(x))^{-1}}\left(\sqrt{2}\int_0^x \frac{\sqrt{\left(\operatorname{arctanh}(t)\right)^{-1}}}{\left(\operatorname{arctanh}(t)\right)^{2}(t^2-1)}\mathrm{e}^{-1/2\,(\operatorname{arctanh}(t))^{-1}}\right.$$

Mean

$$\mu = -1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^1 \frac{x}{\left(\operatorname{arctanh}(x)\right)^{5/2}(x^2-1)}\mathrm{e}^{-1/2\,(\operatorname{arctanh}(x))^{-1}}\,\mathrm{d}x$$

Variance

$$\sigma^2 = -1/2\,\frac{1}{\pi^{3/2}}\left(\sqrt{2}\int_0^1 \frac{x^2}{\left(\operatorname{arctanh}(x)\right)^{5/2}(x^2-1)}\mathrm{e}^{-1/2\,(\operatorname{arctanh}(x))^{-1}}\,\mathrm{d}x\pi + \left(\int_0^1 \frac{x}{\left(\operatorname{arctanh}(x)\right)^{5/2}(\right.\right.$$

Moment Function

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

Moment Generating Function

$$-1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^1 \frac{1}{(\operatorname{arctanh}(x))^{5/2}(x^2-1)} e^{1/2\,\frac{2\,tx\operatorname{arctanh}(x)-1}{\operatorname{arctanh}(x)}}\,dx$$

1

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{2}}{(\operatorname{arccsch}(x))^{5/2}\sqrt{\pi}\sqrt{x^2+1}\,|x|} e^{-1/2\,(\operatorname{arccsch}(x))^{-1}}$$

Cumulative Distribution Function

$$F(x) = 1/2\,\frac{\sqrt{2}}{\sqrt{\pi}}\int_0^x \frac{1}{(\operatorname{arccsch}(t))^{5/2}\sqrt{t^2+1}\,|t|} e^{-1/2\,(\operatorname{arccsch}(t))^{-1}}\,dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1/2\,\frac{1}{\sqrt{\pi}}\left(-\sqrt{2}\int_0^x \frac{1}{(\operatorname{arccsch}(t))^{5/2}\sqrt{t^2+1}\,|t|} e^{-1/2\,(\operatorname{arccsch}(t))^{-1}}\,dt + 2\sqrt{\pi}\right)$$

Hazard Function

$$h(x) = \frac{\sqrt{2}}{(\operatorname{arccsch}(x))^{5/2}\sqrt{x^2+1}\,|x|} e^{-1/2\,(\operatorname{arccsch}(x))^{-1}}\left(-\sqrt{2}\int_0^x \frac{1}{(\operatorname{arccsch}(t))^{5/2}\sqrt{t^2+1}\,|t|} e^{-1/2\,(\operatorname{arc}\right.$$

Mean

$$\mu = \int_0^\infty 1/2\,\frac{\sqrt{2}}{(\operatorname{arccsch}(x))^{5/2}\sqrt{\pi}\sqrt{x^2+1}} e^{-1/2\,(\operatorname{arccsch}(x))^{-1}}\,dx$$

Variance

$$\sigma^2 = \int_0^\infty 1/2\,\frac{x\sqrt{2}}{(\operatorname{arccsch}(x))^{5/2}\sqrt{\pi}\sqrt{x^2+1}} e^{-1/2\,(\operatorname{arccsch}(x))^{-1}}\,dx - \left(\int_0^\infty 1/2\,\frac{\sqrt{2}}{(\operatorname{arccsch}(x))^{5/2}\sqrt{\pi}\sqrt{x^2}\right.$$

Moment Function

$$m(x) = \int_0^{\infty} 1/2\,\frac{x^r\sqrt{2}}{(\mathrm{arccsch}\,(x))^{5/2}\,\sqrt{\pi}\sqrt{x^2+1}\,|x|}\mathrm{e}^{-1/2\,(\mathrm{arccsch}(x))^{-1}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^{\infty} 1/2\,\frac{\sqrt{2}}{x\,(\mathrm{arccsch}\,(x))^{5/2}\,\sqrt{x^2+1}\sqrt{\pi}}\mathrm{e}^{1/2\,\frac{2\,tx\mathrm{arccsch}(x)-1}{\mathrm{arccsch}(x)}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 1/2\,\frac{\sqrt{2}\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\cosh(x)}{\sqrt{\pi}}$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \frac{-\mathrm{erf}\left(1/2\,\sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-x/2}\right)\sqrt{\pi}+\sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-1/4\,\left(\mathrm{e}^{2\,x}+2\,x\mathrm{e}^{x}-1\right)\mathrm{e}^{-x}}+\sqrt{\pi}}{\sqrt{\pi}}$$

Hazard Function

$$h(x) = -1/2\,\frac{\sqrt{2}\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\cosh(x)}{\mathrm{erf}\left(1/2\,\sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-x/2}\right)\sqrt{\pi}-\sqrt{\mathrm{e}^{2\,x}-1}\mathrm{e}^{-1/4\,(\mathrm{e}^{2\,x}+2\,x\mathrm{e}^{x}-1)\mathrm{e}^{-x}}-\sqrt{\pi}}$$

Mean

$$\mu = \int_0^{\infty} 1/2\,\frac{x\sqrt{\sinh(x)}\mathrm{e}^{-1/2\,\sinh(x)}\sqrt{2}\cosh(x)}{\sqrt{\pi}}\,\mathrm{d}x$$

Variance

$$\sigma^2 = \int_0^\infty 1/2 \, \frac{x^2 \sqrt{\sinh(x)} \mathrm{e}^{-1/2 \sinh(x)} \sqrt{2} \cosh(x)}{\sqrt{\pi}} \, \mathrm{d}x - \left(\int_0^\infty 1/2 \, \frac{x \sqrt{\sinh(x)} \mathrm{e}^{-1/2 \sinh(x)} \sqrt{2} \cosh(x}{\sqrt{\pi}} \right.$$

Moment Function

$$m(x) = \int_0^\infty 1/2 \, \frac{x^r \sqrt{2} \sqrt{\sinh(x)} \mathrm{e}^{-1/2 \sinh(x)} \cosh(x)}{\sqrt{\pi}} \, \mathrm{d}x$$

Moment Generating Function

$$\int_0^\infty 1/2 \, \frac{\sqrt{2} \sqrt{\sinh(x)} \cosh(x) \, \mathrm{e}^{tx - 1/2 \sinh(x)}}{\sqrt{\pi}} \, \mathrm{d}x_1$$