"ChiRV(3)"

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

$$t \mapsto t^2$$

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

$$mu = 3$$

Variance

$$sigma^2 = 6$$

Moment Function

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

Moment Generating Function

$$\lim_{x\to\infty} -\frac{\sqrt{x}\mathrm{e}^{1/2\,x(2\,t-1)}\sqrt{2}\sqrt{1-2\,t}-\sqrt{\pi}\mathrm{erf}\left(1/2\,\sqrt{2}\sqrt{1-2\,t}\sqrt{x}\right)}{(1-2\,t)^{3/2}\,\sqrt{\pi}}$$

1

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

Probability Distribution Function

$$f(x)=2\,\frac{x^5\mathrm{e}^{-1/2\,x^4}\sqrt{2}}{\sqrt{\pi}}$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu=3/2\,\frac{\sqrt[4]{2}\Gamma\left(3/4\right)}{\sqrt{\pi}}$$

Variance

$$sigma^2=1/4\,\frac{\sqrt{2}\left(-9\,\left(\Gamma\left(3/4\right)\right)^2\sqrt{\pi}+8\,\pi\right)}{\pi^{3/2}}$$

Moment Function

$$m(x)=\frac{2^{1+r/4}\Gamma\left(r/4+3/2\right)}{\sqrt{\pi}}$$

Moment Generating Function

$$1/24\,\frac{1}{\sqrt{\pi}\Gamma\left(3/4\right)}\left(5\,\pi\,{}_1\mathrm{F}_3(9/4;\ 5/4,3/2,7/4;\ \frac{t^4}{128})\sqrt[4]{2}t^3+24\,\sqrt{2}\Gamma\left(3/4\right){}_1\mathrm{F}_3(2;\ 3/4,5/4,3/2;\ \frac{t^4}{128}\right.$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

$$2\,\frac{G^{3,0}_{0,3}\left(1/8\,t^2\,\middle|\,{}_{3/2,1/2,0}\right)}{\pi}{}_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = \frac{\sqrt{2}}{\sqrt{\pi}}\int_0^x \frac{(\sin(t))^2}{(\cos(t))^4}\mathrm{e}^{-1/2\,\frac{(\sin(t))^2}{(\cos(t))^2}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -\frac{1}{\sqrt{\pi}}\left(\sqrt{2}\int_0^x \frac{(\sin(t))^2}{(\cos(t))^4}\mathrm{e}^{-1/2\,\frac{(\sin(t))^2}{(\cos(t))^2}}\,\mathrm{d}t - \sqrt{\pi}\right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{2}\,(\sin(x))^2}{(\cos(x))^4}\mathrm{e}^{-1/2\,\frac{(\sin(x))^2}{(\cos(x))^2}}\left(\sqrt{2}\int_0^x \frac{(\sin(t))^2}{(\cos(t))^4}\mathrm{e}^{-1/2\,\frac{(\sin(t))^2}{(\cos(t))^2}}\,\mathrm{d}t - \sqrt{\pi}\right)^{-1}$$

Mean

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

Variance

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

Moment Function

$$m(x) = \int_0^{\pi/2} \frac{x^r \sqrt{2}\,(\sin(x))^2}{(\cos(x))^4 \sqrt{\pi}} \mathrm{e}^{-1/2\,\frac{(\sin(x))^2}{(\cos(x))^2}}\,\mathrm{d}x$$

Moment Generating Function

$$\frac{-2\,\frac{\sqrt{2}}{\sqrt{\pi}} \int_0^{\pi/2} \frac{-1+\cos(2\,x)}{(\cos(2\,x)+1)^2} \mathrm{e}^{1/2\,\frac{2\,tx\cos(2\,x)+2\,tx+\cos(2\,x)-1}{\cos(2\,x)+1}}\,\mathrm{d}x_{\;1}}{\quad}-$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

$$sigma^2 = -\frac{4\,\mathrm{e}\left(\mathrm{erf}\left(1/2\sqrt{2}\right)\right)^2\pi^{3/2} + 8\,\mathrm{e}\mathrm{erf}\left(1/2\sqrt{2}\right)\pi^{3/2} + 4\sqrt{2}\mathrm{e}^{1/2}\mathrm{erf}\left(1/2\sqrt{2}\right)\pi + 4\,\mathrm{e}\pi^{3/2} - 5}{\pi^{3/2}}$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = \int_{0}^{\infty}\frac{x\left(e^{x}-1\right)^{2}e^{-1/2\,e^{2\,x}+e^{x}-1/2+x}\sqrt{2}}{\sqrt{\pi}}\,dx$$

Variance

$$sigma^{2} = \int_{0}^{\infty}\frac{x^{2}\left(e^{x}-1\right)^{2}e^{-1/2\,e^{2\,x}+e^{x}-1/2+x}\sqrt{2}}{\sqrt{\pi}}\,dx-\left(\int_{0}^{\infty}\frac{x\left(e^{x}-1\right)^{2}e^{-1/2\,e^{2\,x}+e^{x}-1/2+x}\sqrt{2}}{\sqrt{\pi}}\,dx\right)^{2}$$

Moment Function

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

Moment Generating Function

$$\int_{0}^{\infty}\frac{\left(e^{x}-1\right)^{2}\sqrt{2}e^{tx-1/2\,e^{2\,x}+e^{x}-1/2+x}}{\sqrt{\pi}}\,dx_{1}$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

$$sigma^2 = \frac{1}{\pi^{3/2}}\left(\sqrt{2}\int_0^{(\ln(2))^{-1}}\left(e^{x^{-1}}-2\right)^2 e^{1/2\,\frac{1}{x}\left(4\,e^{x^{-1}}x-e^{2\,x^{-1}}x-4\,x+2\right)}\,dx\pi - 2\left(\int_0^{(\ln(2))^{-1}}\frac{\left(e^{x^{-1}}-\right.}{x}\right.\right.$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = 1/2\, \frac{\left(2\sqrt{\pi} \operatorname{erf}\left(1/4\sqrt{2}\left(e^{x} - e^{-x}\right)\right) e^{1/8 \left(e^{4x}+8xe^{2x}+1\right) e^{-2x}} - \sqrt{2} e^{1/4+2x} + \sqrt{2} e^{1/4}\right) e^{-1/8 \left(e^{4x}+\right.}}{\sqrt{\pi}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = -1/2\, \frac{\sqrt{2} e^{-1/8 \left(e^{4x}+8xe^{2x}-2e^{2x}+1\right) e^{-2x}} - \sqrt{2} e^{-1/8 \left(e^{4x}-8xe^{2x}-2e^{2x}+1\right) e^{-2x}} + 2\sqrt{\pi} \operatorname{erf}\left(1/4\sqrt{2}\right.}{\sqrt{\pi}}$$

Hazard Function

$$h(x) = 2\, \frac{\left(\sinh(x)\right)^2 e^{-1/2 \left(\sinh(x)\right)^2} \sqrt{2} \cosh(x)}{\sqrt{2} e^{-1/8 \left(e^{4x}-8xe^{2x}-2e^{2x}+1\right) e^{-2x}} - \sqrt{2} e^{-1/8 \left(e^{4x}+8xe^{2x}-2e^{2x}+1\right) e^{-2x}} - 2\sqrt{\pi} \operatorname{erf}\left(1/4\sqrt{2}\left(e^{x} -\right.\right.}$$

Mean

$$mu = \int_0^{\infty} \frac{e^{1/4-1/4 \cosh(2x)} \left(\sinh(x)\right)^2 \cosh(x) \sqrt{2} x}{\sqrt{\pi}}\, dx$$

Variance

$$sigma^2 = \int_0^\infty \frac{e^{1/4-1/4\,\cosh(2\,x)}\left(\sinh(x)\right)^2\cosh(x)\sqrt{2}x^2}{\sqrt{\pi}}\,dx - \left(\int_0^\infty \frac{e^{1/4-1/4\,\cosh(2\,x)}\left(\sinh(x)\right)^2\cosh$$

Moment Function

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

Moment Generating Function

$$\int_0^\infty \frac{e^{tx+1/4-1/4\,\cosh(2\,x)}\left(\sinh(x)\right)^2\cosh(x)\sqrt{2}}{\sqrt{\pi}}\,dx_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

$$t \mapsto \mathrm{arccsch}\,(t+1)$$

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = -\frac{\sqrt{2}}{\sqrt{\pi}} \int_0^x \frac{\left(-(\cosh\,(t))^2 + 2\,\sinh\,(t)\right)\cosh\,(t)}{(\sinh\,(t))^4} e^{-1/2\,\frac{(\sinh(t)-1)^2}{(\sinh(t))^2}}\,dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{2} \int_0^x \frac{\left(-(\cosh\,(t))^2 + 2\,\sinh\,(t)\right)\cosh\,(t)}{(\sinh\,(t))^4} e^{-1/2\,\frac{(\sinh(t)-1)^2}{(\sinh(t))^2}}\,dt + \sqrt{\pi} \right)$$

Hazard Function

$$h(x) = \frac{\sqrt{2}\left((\cosh(x))^2 - 2\sinh(x)\right)\cosh(x)}{(\sinh(x))^4} e^{-1/2\,\frac{(\sinh(x)-1)^2}{(\sinh(x))^2}} \left(\sqrt{2}\int_0^x \frac{\left(-(\cosh(t))^2 + 2\sinh(t)\right)}{(\sinh(t))^4}\right.$$

Mean

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

Variance

$$sigma^2 = 4\,\frac{1}{\pi^{3/2}}\left(\sqrt{2}\int_0^{\ln\left(1+\sqrt{2}\right)} -\frac{\cosh(x)\left(-(\cosh(x))^2 + 2\sinh(x)\right)x^2}{(-1+\cosh(2x))^2} e^{\frac{-(\cosh(x))^2+2\sinh(x)}{-1+\cosh(2x)}}\,dx\pi -\right.$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

$$sigma^2 = \int_1^{\infty} \frac{x^2 \left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2 e^{-1/2\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2}\sqrt{2}}{\sqrt{\pi}\sqrt{x^2-2x+2}}\, dx - \left(\int_1^{\infty} \frac{x\left(\operatorname{arccsch}\left((x-1)^{-}\right.\right.}{\sqrt{\pi}\sqrt{}}\right.$$

Moment Function

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

Moment Generating Function

$$\int_1^{\infty} \frac{\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2 \sqrt{2} e^{tx-1/2\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2}}{\sqrt{\pi}\sqrt{x^2-2x+2}}\, dx_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = -\frac{\sqrt{2}}{\sqrt{\pi}} \int_0^x \frac{1}{(\operatorname{arctanh}(t))^4 (t^2-1)} e^{-1/2\,(\operatorname{arctanh}(t))^{-2}}\, dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{2} \int_0^x \frac{1}{(\operatorname{arctanh}(t))^4 (t^2-1)} e^{-1/2\,(\operatorname{arctanh}(t))^{-2}}\, dt + \sqrt{\pi}\right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{2}}{(\operatorname{arctanh}(x))^4 (x^2-1)} e^{-1/2\,(\operatorname{arctanh}(x))^{-2}} \left(\sqrt{2} \int_0^x \frac{1}{(\operatorname{arctanh}(t))^4 (t^2-1)} e^{-1/2\,(\operatorname{arctanh}(t))^{-2}}\right.$$

Mean

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

Variance

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

Moment Function

$$m(x) = \int_0^1 -\frac{x^r \sqrt{2}}{(\operatorname{arctanh}(x))^4 \sqrt{\pi} (x^2-1)} \mathrm{e}^{-1/2\,(\operatorname{arctanh}(x))^{-2}}\,\mathrm{d}x$$

Moment Generating Function

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

1

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{2}}{\sqrt{\pi}\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^4\,|x|} \mathrm{e}^{-1/2\,(\operatorname{arccsch}(x))^{-2}}$$

Cumulative Distribution Function

$$F(x) = \frac{\sqrt{2}}{\sqrt{\pi}} \int_0^x \frac{1}{\sqrt{t^2+1}\,(\operatorname{arccsch}(t))^4\,|t|} \mathrm{e}^{-1/2\,(\operatorname{arccsch}(t))^{-2}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -\frac{1}{\sqrt{\pi}} \left(\sqrt{2} \int_0^x \frac{1}{\sqrt{t^2+1}\,(\operatorname{arccsch}(t))^4\,|t|} \mathrm{e}^{-1/2\,(\operatorname{arccsch}(t))^{-2}}\,\mathrm{d}t - \sqrt{\pi} \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{2}}{\sqrt{x^2+1}\,(\mathrm{arccsch}\,(x))^4\,|x|}\mathrm{e}^{-1/2\,(\mathrm{arccsch}(x))^{-2}}\left(\sqrt{2}\int_0^x \frac{1}{\sqrt{t^2+1}\,(\mathrm{arccsch}\,(t))^4\,|t|}\mathrm{e}^{-1/2\,(\mathrm{arccsch}(

Survivor Function

$$S(x) = 1/2\,\frac{-2\,\sqrt{\pi}\mathrm{erf}\left(1/4\,\sqrt{2}\,(\mathrm{e}^{x}-\mathrm{e}^{-x})\right)+\sqrt{2}\mathrm{e}^{-1/8\,\left(\mathrm{e}^{4\,x}-8\,x\mathrm{e}^{2\,x}-2\,\mathrm{e}^{2\,x}+1\right)\mathrm{e}^{-2\,x}}-\sqrt{2}\mathrm{e}^{-1/8\,\left(\mathrm{e}^{4\,x}+8\,x\mathrm{e}^{2\,x}-}}{\sqrt{\pi}}$$

Hazard Function

$$h(x) = 2\,\frac{\sqrt{2}\mathrm{e}^{-1/2\,(\sinh(x))^2}\cosh(x)\,(\sinh(x))^2}{-2\,\sqrt{\pi}\mathrm{erf}\left(1/4\,\sqrt{2}\,(\mathrm{e}^{x}-\mathrm{e}^{-x})\right)+\sqrt{2}\mathrm{e}^{-1/8\,(\mathrm{e}^{4\,x}-8\,x\mathrm{e}^{2\,x}-2\,\mathrm{e}^{2\,x}+1)\mathrm{e}^{-2\,x}}-\sqrt{2}\mathrm{e}^{-1/8\,(\mathrm{e}^{4\,x}+8\,x\mathrm{e}^{2\,x}-2\,\mathrm{e}^{2}}}$$

Mean

$$mu = \int_0^\infty \frac{\mathrm{e}^{1/4-1/4\,\cosh(2\,x)}\,(\sinh(x))^2\cosh(x)\,\sqrt{2}x}{\sqrt{\pi}}\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_0^\infty \frac{\mathrm{e}^{1/4-1/4\,\cosh(2\,x)}\,(\sinh(x))^2\cosh(x)\,\sqrt{2}x^2}{\sqrt{\pi}}\,\mathrm{d}x-\left(\int_0^\infty \frac{\mathrm{e}^{1/4-1/4\,\cosh(2\,x)}\,(\sinh(x))^2\cosh}{\sqrt{\pi}}\right.$$

Moment Function

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

Moment Generating Function

$$\int_0^\infty \frac{\mathrm{e}^{tx+1/4-1/4\,\cosh(2\,x)}\,(\sinh(x))^2\cosh(x)\,\sqrt{2}}{\sqrt{\pi}}\,\mathrm{d}x_1$$