"WeibullRV(1,2)"

$$[x \mapsto 2\,x\mathrm{e}^{-x^2}]$$

$$t \mapsto t^2$$

Probability Distribution Function

$$f(x) = \mathrm{e}^{-x}$$

Cumulative Distribution Function

$$F(x) = 1 - \mathrm{e}^{-x}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\ln(1-s)]$$

Survivor Function

$$S(x) = \mathrm{e}^{-x}$$

Hazard Function

$$h(x) = 1$$

Mean

$$mu = 1$$

Variance

$$sigma^2 = 1$$

Moment Function

$$m(x) = \Gamma(r+1)$$

Moment Generating Function

$$\lim_{x\to\infty} \frac{\mathrm{e}^{x(t-1)} - 1}{t-1}{}_1$$

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

Probability Distribution Function

$$f(x) = 4\,x^3 e^{-x^4}$$

Cumulative Distribution Function

$$F(x) = 1 - e^{-x^4}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \sqrt[4]{-\ln(1-s)}]$$

Survivor Function

$$S(x) = e^{-x^4}$$

Hazard Function

$$h(x) = 4\,x^3$$

Mean

$$mu = 1/4\,\frac{\pi\sqrt{2}}{\Gamma(3/4)}$$

Variance

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

Moment Function

$$m(x) = \Gamma(r/4+1)$$

Moment Generating Function

$$1/8\,\frac{1}{\Gamma(3/4)\sqrt{\pi}}\Bigg((\Gamma(3/4))^2\,{}_0F_2(\ ;\ 5/4, 3/2;\ \frac{t^4}{256})t^3\sqrt{\pi} + 2\,\pi^{3/2}\sqrt{2}{}_0F_2(\ ;\ 1/2, 3/4;\ \frac{t^4}{256})t + 2\,\pi\,\Gamma(3$$

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = e^{-x^{-2}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = ERROR(IDF) : Couldnotfindtheappropriateinverse$$

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

Survivor Function

$$S(x) = 1 - e^{-x^{-2}}$$

Hazard Function

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

Mean

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

Variance

$$sigma^2 = \infty$$

Moment Function

$$m(x) = \Gamma(-r/2 + 1)$$

Moment Generating Function

$$\frac{G_{0,3}^{3,0}\left(1/4\,t^2 \,\middle|\, {}_{1,1/2,0}\right)}{\sqrt{\pi}}$$

1

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

Probability Distribution Function

$$f(x) = 2\,\frac{\sin(x)}{(\cos(x))^3} e^{-\frac{(\sin(x))^2}{(\cos(x))^2}}$$

Cumulative Distribution Function

$$F(x) = 1 - e^{-\frac{(\sin(x))^2}{(\cos(x))^2}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = e^{-\frac{(\sin(x))^2}{(\cos(x))^2}}$$

Hazard Function

$$h(x) = 2\,\frac{\sin(x)}{(\cos(x))^3}$$

Mean

$$mu = 2\int_0^{\pi/2} \frac{x\sin(x)}{(\cos(x))^3} e^{\frac{-1+\cos(2\,x)}{\cos(2\,x)+1}}\,dx$$

Variance

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

Moment Function

$$m(x) = \int_0^{\pi/2} 2\,\frac{x^r\sin(x)}{(\cos(x))^3} e^{-\frac{(\sin(x))^2}{(\cos(x))^2}}\,dx$$

Moment Generating Function

$$2\int_0^{\pi/2} \frac{\sin(x)}{(\cos(x))^3} e^{\frac{tx\cos(2\,x)+tx+\cos(2\,x)-1}{\cos(2\,x)+1}}\,dx_1$$

$$t \mapsto e^t$$

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = 1 - e^{-(\ln(x))^2}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \mathrm{e}^{-(\ln(x))^2}$$

Hazard Function

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

Mean

$$mu = 1 + 1/2\,\sqrt{\pi}\mathrm{e}^{1/4}\mathrm{erf}\,(1/2) + 1/2\,\sqrt{\pi}\mathrm{e}^{1/4}$$

Variance

$$sigma^2 = \sqrt{\pi}\mathrm{e}\mathrm{erf}\,(1) + \sqrt{\pi}\mathrm{e} - \sqrt{\pi}\mathrm{e}^{1/4}\mathrm{erf}\,(1/2) - \sqrt{\pi}\mathrm{e}^{1/4} - 1/4\,\pi\,\mathrm{e}^{1/2}\,(\mathrm{erf}\,(1/2))^2 - 1/2\,\pi\,\mathrm{e}^{1/2}\mathrm{erf}\,(1/2)$$

Moment Function

$$m(x) = 1 + 1/2\,r\,\sqrt{\pi}\mathrm{e}^{1/4\,r^2}\mathrm{erf}\,(r/2) + 1/2\,r\,\sqrt{\pi}\mathrm{e}^{1/4\,r^2}$$

Moment Generating Function

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

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

Probability Distribution Function

$$f(x) = 2\,\mathrm{e}^{2\,x-\mathrm{e}^{2\,x}}$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \mathrm{e}^{-\mathrm{e}^{2\,x}}$$

Hazard Function

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

Mean

$$mu = \int_{-\infty}^{\infty} 2\,x\mathrm{e}^{2\,x - \mathrm{e}^{2\,x}}\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_{-\infty}^{\infty} 2\,x^2\mathrm{e}^{2\,x - \mathrm{e}^{2\,x}}\,\mathrm{d}x - \left(\int_{-\infty}^{\infty} 2\,x\mathrm{e}^{2\,x - \mathrm{e}^{2\,x}}\,\mathrm{d}x\right)^2$$

Moment Function

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

Moment Generating Function

$$\int_{-\infty}^{\infty} 2\,\mathrm{e}^{tx + 2\,x - \mathrm{e}^{2\,x}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = \mathrm{e}^{-(\ln(x))^2}$$

Inverse Cumulative Distribution Function

$$F^{-1} = ERROR(IDF) : Couldnotfindtheappropriateinverse$$

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

Survivor Function

$$S(x) = 1 - \mathrm{e}^{-(\ln(x))^2}$$

Hazard Function

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

Mean

$$mu = 1 + 1/2\,\sqrt{\pi}e^{1/4}\mathrm{erf}\,(1/2) - 1/2\,\sqrt{\pi}e^{1/4}$$

Variance

$$sigma^2 = \sqrt{\pi}e\mathrm{erf}\,(1) - \sqrt{\pi}e - \sqrt{\pi}e^{1/4}\mathrm{erf}\,(1/2) + \sqrt{\pi}e^{1/4} - 1/4\,\pi\,e^{1/2}\,(\mathrm{erf}\,(1/2))^2 + 1/2\,\pi\,e^{1/2}\mathrm{erf}\,(1/2)$$

Moment Function

$$m(x) = 1 + 1/2\,r\,\sqrt{\pi}e^{1/4\,r^2}\mathrm{erf}\,(r/2) - 1/2\,r\,\sqrt{\pi}e^{1/4\,r^2}$$

Moment Generating Function

$$-2\int_0^1 \frac{\ln(x)\,e^{tx-(\ln(x))^2}}{x}\,dx_1$$

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

Probability Distribution Function

$$f(x) = 2\,e^{-2\,x-e^{-2\,x}}$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = \int_{-\infty}^{\infty} 2\,x e^{-2\,x - e^{-2\,x}}\,dx$$

Variance

$$sigma^2 = \int_{-\infty}^{\infty} 2\,x^2 e^{-2\,x - e^{-2\,x}}\,dx - \left(\int_{-\infty}^{\infty} 2\,x e^{-2\,x - e^{-2\,x}}\,dx\right)^2$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} 2\,x^r e^{-2\,x - e^{-2\,x}}\,dx$$

Moment Generating Function

$$\int_{-\infty}^{\infty} 2\,e^{tx - 2\,x - e^{-2\,x}}\,dx_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

$$h(x) = 2\,(e^x - 1)\,e^x$$

Mean

$$mu = \int_0^{\infty} 2\,x\,(e^x - 1)\,e^{-e^{2\,x} + 2\,e^x + x - 1}\,dx$$

Variance

$$sigma^2 = \int_0^{\infty} 2\,x^2\left(e^{x}-1\right)e^{-e^{2\,x}+2\,e^{x}+x-1}\,dx - \left(\int_0^{\infty} 2\,x\left(e^{x}-1\right)e^{-e^{2\,x}+2\,e^{x}+x-1}\,dx\right)^2$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = \frac{\sqrt[4]{e^{(\ln(1-x))^2}} - \sqrt{(1-x)^{\ln(x+1)}}\,e^{-1/4\,(\ln(x+1))^2}}{\sqrt[4]{e^{(\ln(1-x))^2}}}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \frac{\sqrt{(x+1)^{\ln(1-x)}}\,e^{-1/4\,(\ln(x+1))^2}}{\sqrt[4]{e^{(\ln(1-x))^2}}}$$

Hazard Function

$$h(x) = -2\,\frac{\operatorname{arctanh}(x)\,e^{1/4\,(\ln(x+1) - 2\operatorname{arctanh}(x))(\ln(x+1) + 2\operatorname{arctanh}(x))}\sqrt[4]{e^{(\ln(1-x))^2}}}{\sqrt{(1-x)^{\ln(x+1)}}\,(x^2 - 1)}$$

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

$$-2 \int_0^1 \frac{\operatorname{arctanh}(x)\, e^{tx-(\operatorname{arctanh}(x))^2}}{x^2-1}\, dx_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = ERROR(IDF) : Couldnotfindtheappropriateinverse$$

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

$$f(x) = 2\,\sinh(x)\,\mathrm{e}^{-(\sinh(x))^2}\cosh(x)$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = ERROR(IDF) : Couldnotfindtheappropriateinverse$$

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = \int_0^\infty e^{1/2-1/2\,\cosh(2\,x)}x\sinh(2\,x)\,dx$$

Variance

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

Moment Function

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

Moment Generating Function

$$\int_0^\infty e^{tx+1/2-1/2\,\cosh(2\,x)}\sinh(2\,x)\,dx_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = "UnabletofindIDF"$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

$$f(x) = -2 \frac{(\sinh(x) - 1)\cosh(x)}{(\sinh(x))^3} e^{-\frac{(\sinh(x)-1)^2}{(\sinh(x))^2}}$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

$$-2\int_0^{\ln\left(1+\sqrt{2}\right)} \frac{(\sinh(x)-1)\cosh(x)}{(\sinh(x))^3} e^{\frac{(\cosh(x))^2tx-(\cosh(x))^2-tx+2\sinh(x)}{(\sinh(x))^2}}\,dx_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

$$h(x) = -2\,\frac{\mathrm{e}^{-\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)^2}\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)}{\Big((x-1)^{1/2\,\ln(x+1)}\,\mathrm{e}^{-1/4\,(\ln(x+1))^2-1/4\,(\ln(x-1))^2-1}x + (x-1)^{1/2\,\ln(x+1)}\,\mathrm{e}^{-1/4\,(\ln(x+1))^2-1/4\,(\ln}}$$

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = "Unable to find Mean"$$

$$Variance$$

sigma^2 = "$Unable to find Variance$"

Moment Function

$$m(x) = \int_{0}^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}}\!2\,{\frac{{x}^{r}\left(-1+\sinh\left({x}^{-1}\right)\right){{\rm e}^{-\left(-1+\sinh\left({x}^{-1}\right)\right)^{2}}}\cosh\left({x}^{-1}\right)}{{x}^{2}}}{dx}$$

Moment Generating Function

$$"unable to calculate MGF"$$

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = "UnabletofindIDF"$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

$$f(x) = -2\,\frac{1}{\left(\operatorname{arctanh}(x)\right)^{3}\left(x^{2}-1\right)} e^{-\left(\operatorname{arctanh}(x)\right)^{-2}}$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = ERROR(IDF) : Couldnotfindtheappropriateinverse$$

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

Survivor Function

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

Hazard Function

$$h(x) = 2\,\frac{1}{\left(\operatorname{arctanh}(x)\right)^{3}\left(x^{2}-1\right)} e^{-\left(\operatorname{arctanh}(x)\right)^{-2}}\left(-1+e^{-4\left(\ln(x+1)-\ln(1-x)\right)^{-2}}\right)^{-1}$$

Mean

$$mu = -2\int_{0}^{1}\frac{x}{\left(\operatorname{arctanh}(x)\right)^{3}\left(x^{2}-1\right)} e^{-\left(\operatorname{arctanh}(x)\right)^{-2}}\,dx$$

Variance

$$sigma^{2} = -2\int_{0}^{1}\frac{x^{2}}{\left(\operatorname{arctanh}(x)\right)^{3}\left(x^{2}-1\right)} e^{-\left(\operatorname{arctanh}(x)\right)^{-2}}\,dx - 4\left(\int_{0}^{1}\frac{x}{\left(\operatorname{arctanh}(x)\right)^{3}\left(x^{2}-1\right)} e^{-(\operatorname{arctan}\right.$$

Moment Function

$$m(x) = \int_0^1 -2\,\frac{x^r}{(\operatorname{arctanh}(x))^3 (x^2-1)} \mathrm{e}^{-(\operatorname{arctanh}(x))^{-2}}\,\mathrm{d}x$$

Moment Generating Function

$$-2\int_0^1 \frac{1}{(\operatorname{arctanh}(x))^3 (x^2-1)} \mathrm{e}^{\frac{tx(\operatorname{arctanh}(x))^2-1}{(\operatorname{arctanh}(x))^2}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 2\,\frac{1}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^3\,|x|} \mathrm{e}^{-(\operatorname{arccsch}(x))^{-2}}$$

Cumulative Distribution Function

$$F(x) = 2\int_0^x \frac{1}{\sqrt{t^2+1}\,(\operatorname{arccsch}(t))^3\,|t|} \mathrm{e}^{-(\operatorname{arccsch}(t))^{-2}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} = "UnabletofindIDF"$$

Survivor Function

$$S(x) = 1 - 2\int_0^x \frac{1}{\sqrt{t^2+1}\,(\operatorname{arccsch}(t))^3\,|t|} \mathrm{e}^{-(\operatorname{arccsch}(t))^{-2}}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -2\,\frac{1}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^3\,|x|} \mathrm{e}^{-(\operatorname{arccsch}(x))^{-2}} \left(-1 + 2\int_0^x \frac{1}{\sqrt{t^2+1}\,(\operatorname{arccsch}(t))^3\,|t|} \mathrm{e}^{-(\operatorname{arccsch}\right.$$

Mean

$$mu = \int_0^\infty 2\,\frac{1}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^3} \mathrm{e}^{-(\operatorname{arccsch}(x))^{-2}}\,\mathrm{d}x$$

Variance

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

Moment Function

$$m(x) = \int_0^\infty 2\,\frac{x^r}{\sqrt{x^2+1}\,(\mathrm{arccsch}\,(x))^3\,|x|}\mathrm{e}^{-(\mathrm{arccsch}(x))^{-2}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^\infty 2\,\frac{1}{\sqrt{x^2+1}\,(\mathrm{arccsch}\,(x))^3\,x}\mathrm{e}^{\frac{tx(\mathrm{arccsch}(x))^2-1}{(\mathrm{arccsch}(x))^2}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 2\,\mathrm{e}^{-(\sinh(x))^2}\cosh(x)\sinh(x)$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = ERROR(IDF) : Couldnotfindtheappropriateinverse$$

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

Survivor Function

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

Hazard Function

$$h(x) = 2\,\sinh(x)\,\mathrm{e}^{-(\cosh(x))^2+1/2+1/4\,\mathrm{e}^{2\,x}+1/4\,\mathrm{e}^{-2\,x}}\cosh(x)$$

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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