"ExponentialRV(2)"

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

$$t \mapsto t^2$$

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

$$h(x) = \frac{1}{\sqrt{x}}$$

Mean

$$mu = 1/2$$

Variance

$$sigma^2 = 5/4$$

Moment Function

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

Moment Generating Function

$$\lim_{x\to\infty} -\frac{\sqrt{\pi}}{\sqrt{-t}}\mathrm{e}^{-t^{-1}}\left(\mathrm{erf}\left(\frac{t\sqrt{x}-1}{\sqrt{-t}}\right)+\mathrm{erf}\left(\frac{1}{\sqrt{-t}}\right)\right)_1$$

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

Probability Distribution Function

$$f(x) = 4\,\mathrm{e}^{-2\,x^2}x$$

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

$$1 + 1/4\,t\sqrt{\pi}\mathrm{e}^{1/8\,t^2}\sqrt{2}\mathrm{erf}\left(1/4\,t\sqrt{2}\right) + 1/4\,t\sqrt{\pi}\mathrm{e}^{1/8\,t^2}\sqrt{2}_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = \infty$$

Variance

$$sigma^2 = undefined$$

Moment Function

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

Moment Generating Function

$$2\sqrt{-t}\sqrt{2}K_1\left(2\sqrt{-t}\sqrt{2}\right)_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

$$F(x) = \begin{cases} 1 - \mathrm{e}^{-2\,\tan(x)} & x \leq \pi/2 \\ \infty & \pi/2 < x \end{cases}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \begin{cases} \mathrm{e}^{-2\,\tan(x)} & x \leq \pi/2 \\ -\infty & \pi/2 < x \end{cases}$$

Hazard Function

$$h(x) = \begin{cases} 2\,(\cos(x))^{-2} & x \leq \pi/2 \\ 0 & \pi/2 < x \end{cases}$$

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

$$2\int_0^{\pi/2} \frac{1}{(\cos(x))^2} \mathrm{e}^{-\frac{-tx\cos(x)+2\,\sin(x)}{\cos(x)}}\,\mathrm{d}x_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = 2$$

Variance

$$sigma^2 = \infty$$

Moment Function

$$m(x) = \lim_{x \to \infty} 2\,\frac{x^{r-2} - 1}{r - 2}$$

Moment Generating Function

$$\lim_{x \to \infty} -\frac{Ei\,(1, -tx)\,t^2x^2 - Ei\,(1, -t)\,t^2x^2 - \mathrm{e}^t t x^2 - \mathrm{e}^t x^2 + t\mathrm{e}^{tx}x + \mathrm{e}^{tx}}{x^2}$$ [1]

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = -x^2 + 1$$

Hazard Function

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

Mean

$$mu = 2/3$$

Variance

$$sigma^2 = 1/18$$

Moment Function

$$m(x) = 2\,(r + 2)^{-1}$$

Moment Generating Function

$$2\,\frac{e^t t - e^t + 1}{t^2}\,_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = \int_0^{\infty} 2\,x\mathrm{e}^{-2\,\mathrm{e}^{x}+2+x}\,\mathrm{d}x$$

Variance

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

Moment Function

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

Moment Generating Function

$$\int_0^{\infty} 2\,\mathrm{e}^{tx-2\,\mathrm{e}^{x}+2+x}\,\mathrm{d}x_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto (-\ln(2) + \ln(4 - \ln(s)))^{-1}]$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\frac{s}{-2+s}]$$

Survivor Function

$$S(x) = -\frac{x-1}{x+1}$$

Hazard Function

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

Mean

$$mu = -1 + 2\ \ln(2)$$

Variance

$$sigma^2 = -4\ (\ln(2))^2 + 2$$

Moment Function

$$m(x) = \frac{r}{r-1} - (r-1)^{-1} + 2\,r\,LerchPhi\,(-1,1,-r) + 2\,\pi\ \csc(\pi\,r)\,r$$

Moment Generating Function

$$2\,e^{-t}Ei\,(1,-t)\,t - 2\,e^{-t}Ei\,(1,-2\,t)\,t - e^t + 2_1$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

$$mu = \frac{G^{2,3}_{3,3}\left(1\,\middle|\,{-1,-1/2,0 \atop -1/2,-1/2,-5/2}\right)}{\pi}$$

Variance

$$sigma^2 = -\frac{-\infty\,\pi^2 + i\Im\left(\left(G^{2,3}_{3,3}\left(1\,\middle|\,{-1,-1/2,0 \atop -1/2,-1/2,-5/2}\right)\right)^2\right)}{\pi^2}$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \ln\left(-\frac{2+\sqrt{(\ln(s))^2-4\,\ln(s)+8}}{\ln(s)-2}\right)]$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

$$sigma^2 = 4\,\int_0^{\ln\left(1+\sqrt{2}\right)}\frac{\cosh(x)\,x^2}{-1+\cosh(2\,x)}\mathrm{e}^{2\,\frac{\sinh(x)-1}{\sinh(x)}}\,\mathrm{d}x-16\,\left(\int_0^{\ln\left(1+\sqrt{2}\right)}\frac{\cosh(x)\,x}{-1+\cosh(2\,x)}\mathrm{e}^{2\,\frac{\sinh(x)-1}{\sinh(x)}}\,\mathrm{d}x\right)$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \frac{\mathrm{e}^2+s}{\mathrm{e}^2-s}]$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

$$\left(-\mathrm{e}^{\frac{2\,t\mathrm{e}^2+2\,\mathrm{e}^2+1}{\mathrm{e}^2-1}} + \mathrm{e}^{\frac{2\,t\mathrm{e}^2+3}{\mathrm{e}^2-1}} - 2\,\mathrm{e}^{\frac{2\,\mathrm{e}^2+1}{\mathrm{e}^2-1}} Ei\left(1,-2\,\frac{t\mathrm{e}^2}{\mathrm{e}^2-1}\right)t + 2\,\mathrm{e}^{\frac{2\,\mathrm{e}^2+1}{\mathrm{e}^2-1}} Ei\,(1,-2\,t)\,t + \mathrm{e}^{\frac{2\,t\mathrm{e}^2+2\,\mathrm{e}^2-2\,t+1}{\mathrm{e}^2-1}}\right)\mathrm{e}^{-}$$

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\left(\ln(2) - \ln\left(-\ln(s) + 2 + \sqrt{(\ln(s))^2 - 4\,\ln(s) + 8}\right)\right)^{-1}]$$

Survivor Function

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

Hazard Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = 3-2\,x\sqrt{x^2-2\,x+2}+2\,\sqrt{x^2-2\,x+2}+2\,x^2-4\,x$$

Hazard Function

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

Mean

$$mu = 5/3$$

Variance

$$sigma^2 = \infty$$

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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

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

Probability Distribution Function

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

Cumulative Distribution Function

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

Inverse Cumulative Distribution Function

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

Survivor Function

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

Hazard Function

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

Mean

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

Variance

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

Moment Function

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

Moment Generating Function

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