"BetaRV(2,3)"

$$[x \mapsto 12\,x\,(1-x)^2]$$

$$t \mapsto t^2$$

Probability Distribution Function

$$f(x) = 6\,\left(-1+\sqrt{x}\right)^2$$

Cumulative Distribution Function

$$F(x) = 3\,x^2 - 8\,x^{3/2} + 6\,x$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(RootOf\left(3\,\_Z^4 - 8\,\_Z^3 + 6\,\_Z^2 - s\right)\right)^2]$$

Survivor Function

$$S(x) = 1 - 3\,x^2 + 8\,x^{3/2} - 6\,x$$

Hazard Function

$$h(x) = 6\,\frac{(-1+\sqrt{x})^2}{1 - 3\,x^2 + 8\,x^{3/2} - 6\,x}$$

Mean

$$\mu = 1/5$$

Variance

$$\sigma^2 = \frac{11}{350}$$

Moment Function

$$m(x) = 24\,\frac{1}{(2\,r+2)\,(2\,r+3)\,(2\,r+4)}$$

Moment Generating Function

$$6\,\frac{\sqrt{\pi}\mathrm{erf}\left(\sqrt{-t}\right)t - \mathrm{e}^t\sqrt{-t} + (-t)^{3/2} + \sqrt{-t}}{(-t)^{5/2}}$$

1

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

Probability Distribution Function

$$f(x) = 24\,x^3\left(x^2-1\right)^2$$

Cumulative Distribution Function

$$F(x) = 3\,x^8 - 8\,x^6 + 6\,x^4$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \sqrt{\mathit{RootOf}\left(3\_Z^4 - 8\_Z^3 + 6\_Z^2 - s\right)}]$$

Survivor Function

$$S(x) = -3\,x^8 + 8\,x^6 - 6\,x^4 + 1$$

Hazard Function

$$h(x) = -24\,\frac{x^3}{3\,x^4 - 2\,x^2 - 1}$$

Mean

$$\mu = \frac{64}{105}$$

Variance

$$\sigma^2 = \frac{314}{11025}$$

Moment Function

$$m(x) = 192\,\left(r^3 + 18\,r^2 + 104\,r + 192\right)^{-1}$$

Moment Generating Function

$$48\,\frac{4\,\mathrm{e}^t t^5 - 48\,\mathrm{e}^t t^4 + 300\,\mathrm{e}^t t^3 + 3\,t^4 - 1140\,\mathrm{e}^t t^2 + 2520\,\mathrm{e}^t t - 120\,t^2 - 2520\,\mathrm{e}^t + 2520}{t^8}$$

1

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

Probability Distribution Function

$$f(x) = 12\,\frac{(x-1)^2}{x^5}$$

Cumulative Distribution Function

$$F(x) = \frac{x^4 - 6\,x^2 + 8\,x - 3}{x^4}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \mathit{RootOf}\left(3 + (s-1)\,\_Z^4 + 6\,\_Z^2 - 8\,\_Z\right)]$$

Survivor Function

$$S(x) = \frac{6\,x^2 - 8\,x + 3}{x^4}$$

Hazard Function

$$h(x) = 12\,\frac{(x-1)^2}{x\,(6\,x^2 - 8\,x + 3)}$$

Mean

$$\mu = 4$$

Variance

$$\sigma^2 = \infty$$

Moment Function

$$m(x) = \lim_{x\to\infty} 12\,\frac{x^{r-4}r^2x^2 - 2\,x^{r-4}r^2x - 7\,x^{r-4}r\,x^2 + r^2x^{r-4} + 12\,x^{r-4}r\,x + 12\,x^{r-4}x^2 - 5\,r\,x^{r-4} -}{(-2+r)\,(-3+r)\,(r-4)}$$

Moment Generating Function

$$\lim_{x\to\infty} -1/2\,\frac{\mathit{Ei}\,(1,-tx)\,t^4x^4 - \mathit{Ei}\,(1,-t)\,t^4x^4 - 8\,\mathit{Ei}\,(1,-tx)\,t^3x^4 - \mathrm{e}^t t^3x^4 + 8\,\mathit{Ei}\,(1,-t)\,t^3x^4 + 12\,}{}$$

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

Probability Distribution Function

$$f(x) = 12\,\tan(x)\,(-1+\tan(x))^2\left(1 + (\tan(x))^2\right)$$

Cumulative Distribution Function

$$F(x) = \begin{cases} (\tan(x))^2 \left(3\,(\tan(x))^2 - 8\,\tan(x) + 6\right) & x \le \pi/2 \\ \mathit{undefined} & \pi/2 < x \end{cases}$$

Inverse Cumulative Distribution Function

$$[s \mapsto -\arctan\left(-2/3 + 1/6\sqrt{2}\sqrt{\frac{3\left(-s+1+\sqrt{s(s-1)^2}\right)^{2/3} + 2\sqrt[3]{-s+1+\sqrt{s(s-1)^2}} - 3}{\sqrt[3]{-s+1+\sqrt{s(s-1)^2}}}}\right.$$

Survivor Function

$$S(x) = \begin{cases} -3\,(\tan(x))^4 + 8\,(\tan(x))^3 - 6\,(\tan(x))^2 + 1 & x \le \pi/2 \\ \mathit{undefined} & \pi/2 < x \end{cases}$$

Hazard Function

$$h(x) = \begin{cases} 12\,\frac{\sin(x)}{\left(2\,\sin(x)\cos(x)+4\,(\cos(x))^2-3\right)\cos(x)} & x \le \pi/2 \\ \mathit{undefined} & \pi/2 < x \end{cases}$$

Mean

$$\mu = \pi - 4\,\ln(2)$$

Variance

$$\sigma^2 = 2\,\ln(2) - 7 + 2\,\pi - 3/4\,\pi^2 + 10\,\pi\,\ln(2) - 8\,\mathit{Catalan} - 16\,(\ln(2))^2$$

Moment Function

$$m(x) = \int_0^{\pi/4} 12\,x^r \tan(x)\,(-1+\tan(x))^2 \left(1+(\tan(x))^2\right)\,dx$$

Moment Generating Function

$$-12\int_0^{\pi/4} \frac{\sin(x)\,(2\,\sin(x)\cos(x)-1)\,e^{tx}}{(\cos(x))^5}\,dx_1$$

$$t \mapsto e^t$$

Probability Distribution Function

$$f(x) = 12\,\frac{\ln(x)\,(-1+\ln(x))^2}{x}$$

Cumulative Distribution Function

$$F(x) = (\ln(x))^2\left(3\,(\ln(x))^2 - 8\,\ln(x) + 6\right)$$

Inverse Cumulative Distribution Function

$$F^{-1} = [\exp\circ s \mapsto \mathit{RootOf}\left(3\,\_Z^4 - 8\,\_Z^3 + 6\,\_Z^2 - s\right)]$$

Survivor Function

$$S(x) = -3\,(\ln(x))^4 + 8\,(\ln(x))^3 - 6\,(\ln(x))^2 + 1$$

Hazard Function

$$h(x) = -12\,\frac{\ln(x)}{\left(3\,(\ln(x))^2 - 2\,\ln(x) - 1\right)x}$$

Mean

$$\mu = 132 - 48\,\mathrm{e}$$

Variance

$$\sigma^2 = -\frac{34821}{2} - \frac{4611\,\mathrm{e}^2}{2} + 12672\,\mathrm{e}$$

Moment Function

$$m(x) = 12\,\frac{2\,\mathrm{e}^r r + r^2 - 6\,\mathrm{e}^r + 4\,r + 6}{r^4}$$

Moment Generating Function

$$12\int_1^{\mathrm{e}}\frac{\mathrm{e}^{tx}\ln(x)\,(-1+\ln(x))^2}{x}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 12\,\mathrm{e}^{2\,x}\,(-1+\mathrm{e}^x)^2$$

Cumulative Distribution Function

$$F(x) = 6\,e^{2\,x} - 8\,e^{3\,x} + 3\,e^{4\,x}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [ln \circ s \mapsto \mathit{RootOf}\left(3\,\_Z^4 - 8\,\_Z^3 + 6\,\_Z^2 - s\right)]$$

Survivor Function

$$S(x) = 1 - 6\,e^{2\,x} + 8\,e^{3\,x} - 3\,e^{4\,x}$$

Hazard Function

$$h(x) = -12\,\frac{e^{2\,x}}{3\,e^{2\,x} - 2\,e^{x} - 1}$$

Mean

$$\mu = -\frac{13}{12}$$

Variance

$$\sigma^2 = \frac{61}{144}$$

Moment Function

$$m(x) = \int_{-\infty}^{0} 12\,x^r e^{2\,x} \left(-1 + e^{x}\right)^2 \,dx$$

Moment Generating Function

$$\lim_{x \to -\infty} -12\,\frac{e^{x(t+4)}t^2 - 2\,e^{x(t+3)}t^2 + e^{x(t+2)}t^2 + 5\,e^{x(t+4)}t - 12\,e^{x(t+3)}t + 7\,e^{x(t+2)}t + 6\,e^{x(t+4)} - 16\,e^{x(}}{(t+2)\,(t+3)\,(t+4)}$$

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

Probability Distribution Function

$$f(x) = -12\,\frac{\ln(x)\,(1 + \ln(x))^2}{x}$$

Cumulative Distribution Function

$$F(x) = 1 - 3\,(\ln(x))^4 - 8\,(\ln(x))^3 - 6\,(\ln(x))^2$$

Inverse Cumulative Distribution Function

$$F^{-1} = [\exp \circ s \mapsto \mathit{RootOf}\left(3\,\_Z^4 + 8\,\_Z^3 + 6\,\_Z^2 + s - 1\right)]$$

Survivor Function

$$S(x) = (\ln(x))^2 \left(3\,(\ln(x))^2 + 8\,\ln(x) + 6\right)$$

Hazard Function

$$h(x) = -12\,\frac{(1 + \ln(x))^2}{\ln(x)\,x\left(3\,(\ln(x))^2 + 8\,\ln(x) + 6\right)}$$

Mean

$$\mu = -96\,\mathrm{e}^{-1} + 36$$

Variance

$$\sigma^2 = -\frac{18447\,\mathrm{e}^{-2}}{2} - \frac{2589}{2} + 6912\,\mathrm{e}^{-1}$$

Moment Function

$$m(x) = 12\,\frac{(\mathrm{e}^r r^2 - 4\,\mathrm{e}^r r + 6\,\mathrm{e}^r - 2\,r - 6)\,\mathrm{e}^{-r}}{r^4}$$

Moment Generating Function

$$-12\int_{\mathrm{e}^{-1}}^{1} \frac{\mathrm{e}^{tx}\ln(x)\,(1 + \ln(x))^2}{x}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 12\,\mathrm{e}^{-4\,x}\,(-1 + \mathrm{e}^x)^2$$

Cumulative Distribution Function

$$F(x) = \left(\mathrm{e}^{4\,x} - 6\,\mathrm{e}^{2\,x} + 8\,\mathrm{e}^x - 3\right)\mathrm{e}^{-4\,x}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [\mathit{ln} \circ s \mapsto \mathit{RootOf}\left(3 + (s - 1)\,\_Z^4 + 6\,\_Z^2 - 8\,\_Z\right)]$$

Survivor Function

$$S(x) = \left(6\,\mathrm{e}^{2\,x} - 8\,\mathrm{e}^{x} + 3\right)\mathrm{e}^{-4\,x}$$

Hazard Function

$$h(x) = 12\,\frac{\left(-1 + \mathrm{e}^{x}\right)^{2}}{6\,\mathrm{e}^{2\,x} - 8\,\mathrm{e}^{x} + 3}$$

Mean

$$\mu = \frac{13}{12}$$

Variance

$$\sigma^2 = \frac{61}{144}$$

Moment Function

$$m(x) = 12\,\Gamma\left(r+1\right)\left(4^{-r-1} - 2\,3^{-r-1} + 2^{-r-1}\right)$$

Moment Generating Function

$$\lim_{x\to\infty} -12\,\frac{2\,\mathrm{e}^{x(t-3)}t^2 - \mathrm{e}^{x(-2+t)}t^2 - \mathrm{e}^{x(t-4)}t^2 - 12\,\mathrm{e}^{x(t-3)}t + 7\,\mathrm{e}^{x(-2+t)}t + 5\,\mathrm{e}^{x(t-4)}t + 16\,\mathrm{e}^{x(t-3)} - 12\,\mathrm{e}}{(t-4)\,(t-3)\,(-2+t)}$$

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

Probability Distribution Function

$$f(x) = 12\,\left(-1 + \mathrm{e}^{x}\right)\left(-2 + \mathrm{e}^{x}\right)^{2}\mathrm{e}^{x}$$

Cumulative Distribution Function

$$F(x) = 17 + 3\,\mathrm{e}^{4\,x} - 20\,\mathrm{e}^{3\,x} + 48\,\mathrm{e}^{2\,x} - 48\,\mathrm{e}^{x}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [ln \circ s \mapsto RootOf\left(3\,\_Z^4 - 20\,\_Z^3 + 48\,\_Z^2 - 48\,\_Z - s + 17\right)]$$

Survivor Function

$$S(x) = -16 - 3\,\mathrm{e}^{4\,x} + 20\,\mathrm{e}^{3\,x} - 48\,\mathrm{e}^{2\,x} + 48\,\mathrm{e}^{x}$$

Hazard Function

$$h(x) = -12\,\frac{\mathrm{e}^{x}\left(-1 + \mathrm{e}^{x}\right)}{3\,\mathrm{e}^{2\,x} - 8\,\mathrm{e}^{x} + 4}$$

Mean

$$\mu = \frac{137}{12} - 16\,\ln(2)$$

Variance

$$\sigma^2 = -\frac{25895}{144} - 272\,(\ln(2))^2 + 448\,\ln(2)$$

Moment Function

$$m(x) = \int_0^{\ln(2)} 12\,x^r\,(-1+e^x)\,(-2+e^x)^2\,e^x\,dx$$

Moment Generating Function

$$12\,\frac{16\,2^t t + t^2 - 32\,2^t + 11\,t + 34}{t^4 + 10\,t^3 + 35\,t^2 + 50\,t + 24}\,1$$

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

Probability Distribution Function

$$f(x) = 12\,\frac{\left(e^{x^{-1}} - 2\right)\left(-3 + e^{x^{-1}}\right)^2 e^{x^{-1}}}{x^2}$$

Cumulative Distribution Function

$$F(x) = -135 - 3\,e^{4\,x^{-1}} + 32\,e^{3\,x^{-1}} - 126\,e^{2\,x^{-1}} + 216\,e^{x^{-1}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(\ln\left(RootOf\left(3\,\_Z^4 - 32\,\_Z^3 + 126\,\_Z^2 - 216\,\_Z + s + 135\right)\right)\right)^{-1}]$$

Survivor Function

$$S(x) = 136 + 3\,e^{4\,x^{-1}} - 32\,e^{3\,x^{-1}} + 126\,e^{2\,x^{-1}} - 216\,e^{x^{-1}}$$

Hazard Function

$$h(x) = 12\,\frac{e^{x^{-1}}\left(-3 + e^{x^{-1}}\right)^2}{x^2}\left(3\,e^{3\,x^{-1}} - 26\,e^{2\,x^{-1}} + 74\,e^{x^{-1}} - 68\right)^{-1}$$

Mean

$\mu = 252\, Ei\,(2\,\ln(3)) - 96\, Ei\,(3\,\ln(3)) + 12\, Ei\,(4\,\ln(3)) - 216\, Ei\,(\ln(3)) - 252\, Ei\,(2\,\ln(2)) + 96\, Ei\,(3$

Variance

$\sigma^2 = 504\, Ei\,(2\,\ln(3)) - 288\, Ei\,(3\,\ln(3)) + 48\, Ei\,(4\,\ln(3)) - 216\, Ei\,(\ln(3)) - 504\, Ei\,(2\,\ln(2)) + 288\, E$

Moment Function

$$m(x) = \int_{(\ln(3))^{-1}}^{(\ln(2))^{-1}} 12\, \frac{x^r \left(\mathrm{e}^{x^{-1}} - 2\right) \left(-3 + \mathrm{e}^{x^{-1}}\right)^2 \mathrm{e}^{x^{-1}}}{x^2}\, \mathrm{d}x$$

Moment Generating Function

$$12 \int_{(\ln(3))^{-1}}^{(\ln(2))^{-1}} \frac{\left(\mathrm{e}^{x^{-1}} - 2\right) \left(-3 + \mathrm{e}^{x^{-1}}\right)^2}{x^2} \mathrm{e}^{\frac{tx^2+1}{x}}\, \mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = -12\, \frac{\operatorname{arctanh}(x) \left(-1 + \operatorname{arctanh}(x)\right)^2}{x^2 - 1}$$

Cumulative Distribution Function

$$F(x) = \begin{cases} (\operatorname{arctanh}(x))^2 \left(3\, (\operatorname{arctanh}(x))^2 - 8 \operatorname{arctanh}(x) + 6\right) & x \le 1 \\ \textit{undefined} & 1 < x \end{cases}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\tanh\left(-2/3 + 1/6\,\sqrt{2}\,\sqrt{\frac{3\,\left(-s + 1 + \sqrt{s\,(s-1)^2}\right)^{2/3} + 2\,\sqrt[3]{-s + 1 + \sqrt{s\,(s-1}}}{\sqrt[3]{-s + 1 + \sqrt{s\,(s-1)^2}}}}\right.$$

Survivor Function

$$S(x) = \begin{cases} -3\,(\operatorname{arctanh}(x))^4 + 8\,(\operatorname{arctanh}(x))^3 - 6\,(\operatorname{arctanh}(x))^2 + 1 & x \le 1 \\ \textit{undefined} & 1 < x \end{cases}$$

Hazard Function

$$h(x) = \begin{cases} 12\,\frac{\operatorname{arctanh}(x)}{\left(3\,(\operatorname{arctanh}(x))^2 - 2\operatorname{arctanh}(x) - 1\right)(x^2-1)} & x \le 1 \\ \operatorname{arctanh}(x)\,(-1+\operatorname{arctanh}(x))^2\ \textit{undefined} & 1 < x \end{cases}$$

Mean

$$\mu = -12\int_0^{\tanh(1)} \frac{\operatorname{arctanh}(x)\,x\left((\operatorname{arctanh}(x))^2 - 2\operatorname{arctanh}(x) + 1\right)}{x^2-1}\,\mathrm{d}x$$

Variance

$$\sigma^2 = -12\int_0^{\tanh(1)} \frac{\operatorname{arctanh}(x)\,x^2\left((\operatorname{arctanh}(x))^2 - 2\operatorname{arctanh}(x) + 1\right)}{x^2-1}\,\mathrm{d}x - 144\left(\int_0^{\tanh(1)} \frac{\operatorname{arctanh}}{}\right.$$

Moment Function

$$m(x) = \int_0^{\tanh(1)} -12\,\frac{x^r \operatorname{arctanh}(x)\,(-1+\operatorname{arctanh}(x))^2}{x^2-1}\,\mathrm{d}x$$

Moment Generating Function

$$-12\int_0^{\tanh(1)} \frac{\operatorname{arctanh}(x)\,\mathrm{e}^{tx}\left((\operatorname{arctanh}(x))^2 - 2\operatorname{arctanh}(x) + 1\right)}{x^2-1}\,\mathrm{d}x_1$$

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

Probability Distribution Function

$$f(x) = 12\,\frac{\operatorname{arcsinh}(x)\,(-1+\operatorname{arcsinh}(x))^2}{\sqrt{x^2+1}}$$

Cumulative Distribution Function

$$F(x) = \left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^2\left(3\,\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^2 + 8\,\ln\left(-x+\sqrt{x^2+1}\right) + 6\right)$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -1/2\,\mathrm{e}^{RootOf\left(3\,\_Z^4+8\,\_Z^3+6\,\_Z^2-s\right)} + 1/2\,\mathrm{e}^{-RootOf\left(3\,\_Z^4+8\,\_Z^3+6\,\_Z^2-s\right)}]$$

Survivor Function

$$S(x) = -3\,\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^4 - 8\,\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^3 - 6\,\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^2 + 1$$

Hazard Function

$$h(x) = -12\,\frac{\operatorname{arcsinh}(x)\,(-1+\operatorname{arcsinh}(x))^2}{\sqrt{x^2+1}\left(3\,\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^4 + 8\,\left(\ln\left(-x+\sqrt{x^2+1}\right)\right)^3 + 6\,\left(\ln\left(-x+\sqrt{x^2+1}\right.\right.\right.}$$

Mean

$$\mu = 6\,\sqrt{2+2\,\cosh(2)}\,(\ln(2))^3 - 18\,\sqrt{2+2\,\cosh(2)}\,(\ln(2))^2\ln\left(-2\,\sinh(1)+\sqrt{2+2\,\cosh(2)}\right)$$

Variance

$$\sigma^2 = 1728\,\sqrt{2+2\,\cosh(2)}\,(\ln(2))^2\ln\left(-2\,\sinh(1)+\sqrt{2+2\,\cosh(2)}\right) - 1728\,\sqrt{2+2\,\cosh(2)}\,\ln$$

Moment Function

$$m(x) = \int_0^{\sinh(1)} 12\,\frac{x^r\operatorname{arcsinh}(x)\,(-1+\operatorname{arcsinh}(x))^2}{\sqrt{x^2+1}}\,\mathrm{d}x$$

Moment Generating Function

$$\frac{12\,\int_0^{\sinh(1)} \frac{\mathrm{e}^{tx}\operatorname{arcsinh}(x)\left((\operatorname{arcsinh}(x))^2-2\operatorname{arcsinh}(x)+1\right)}{\sqrt{x^2+1}}\,\mathrm{d}x_1}{t \mapsto \operatorname{arcsinh}(t)}$$

Probability Distribution Function

$$f(x) = -12\,\sinh(x)\cosh(x)\left(-(\cosh(x))^2+2\,\sinh(x)\right)$$

Cumulative Distribution Function

$$F(x) = -(\sinh(x))^2\left(-3\,(\cosh(x))^2+8\,\sinh(x)-3\right)$$

Inverse Cumulative Distribution Function

$F^{-1} = [ln \circ s \mapsto RootOf\left(3 + 3\_Z^8 - 16\_Z^7 + 12\_Z^6 + 48\_Z^5 + (-16\,s - 30)\_Z^4 - 48\_Z^3 + 12\_\right.$

Survivor Function

$$S(x) = -3\,(\cosh(x))^4 + 8\,(\cosh(x))^2 \sinh(x) - 8\,\sinh(x) + 4$$

Hazard Function

$$h(x) = 12\,\frac{\sinh(x)\cosh(x)}{-3\,(\cosh(x))^2 + 2\,\sinh(x) + 4}$$

Mean

$$\mu = -1/24\,\frac{828\,\ln\left(\sqrt{2}-1\right)\sqrt{2} - 1173\,\ln\left(\sqrt{2}-1\right) - 3695\,\sqrt{2} + 5224}{-17 + 12\,\sqrt{2}}$$

Variance

$$\sigma^2 = \frac{-1791585\,\left(\ln\left(\sqrt{2}-1\right)\right)^2 + 1266840\,\left(\ln\left(\sqrt{2}-1\right)\right)^2\sqrt{2} + 19519008\,\ln\left(\sqrt{2}-1\right) - 138020}{576\,\left(-17 + 12\,\sqrt{2}\right)^2}$$

Moment Function

$$m(x) = \int_0^{-\ln\left(\sqrt{2}-1\right)} -12\,x^r \sinh(x)\cosh(x)\left(-(\cosh(x))^2 + 2\,\sinh(x)\right)\,\mathrm{d}x$$

Moment Generating Function

$$-12\,\frac{-1530 + 4352\,t - 816\,t^4\left(\sqrt{2}-1\right)^{-t} + 1190\,t^3\left(\sqrt{2}-1\right)^{-t}\sqrt{2} + 68\,t^5 + 17\,t^6 + 576\,t^4\left(\sqrt{2}-\right.}{}$$

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

Probability Distribution Function

$$f(x) = 12\,\frac{(-1 + \operatorname{arccsch}(x))(-2 + \operatorname{arccsch}(x))^2}{\sqrt{x^2+1}\,|x|}$$

Cumulative Distribution Function

$$F(x) = 12 \int_{2\,\frac{e^2}{e^4-1}}^{x} \frac{(-1+\operatorname{arccsch}(t))\,(-2+\operatorname{arccsch}(t))^2}{\sqrt{t^2+1}\,|t|}\,dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1 - 12 \int_{2\,\frac{e^2}{e^4-1}}^{x} \frac{(-1+\operatorname{arccsch}(t))\,(-2+\operatorname{arccsch}(t))^2}{\sqrt{t^2+1}\,|t|}\,dt$$

Hazard Function

$$h(x) = -12\,\frac{(-1+\operatorname{arccsch}(x))\,(-2+\operatorname{arccsch}(x))^2}{\sqrt{x^2+1}\,|x|} \left(-1 + 12 \int_{2\,\frac{e^2}{e^4-1}}^{x} \frac{(-1+\operatorname{arccsch}(t))\,(-2+\operatorname{ar}\right.$$

$$\left.\sqrt{t^2+1}\,|t|\right.$$

Mean

$$\mu = 12 \int_{2\,\frac{e^2}{e^4-1}}^{2\,\frac{e}{e^2-1}} \frac{(-1+\operatorname{arccsch}(x))\,(-2+\operatorname{arccsch}(x))^2}{\sqrt{x^2+1}}\,dx$$

Variance

$$\sigma^2 = 12 \int_{2\,\frac{e^2}{e^4-1}}^{2\,\frac{e}{e^2-1}} \frac{x\,(-1+\operatorname{arccsch}(x))\,(-2+\operatorname{arccsch}(x))^2}{\sqrt{x^2+1}}\,dx - 144 \left(\int_{2\,\frac{e^2}{e^4-1}}^{2\,\frac{e}{e^2-1}} \frac{(-1+\operatorname{arccsch}(x))\,(-}{\sqrt{x^2+}}\right.$$

Moment Function

$$m(x) = \int_{-2\,(e^{-2}-e^{2})^{-1}}^{2\,(e-e^{-1})^{-1}} 12\,\frac{x^r\,(-1+\operatorname{arccsch}(x))\,(-2+\operatorname{arccsch}(x))^2}{\sqrt{x^2+1}\,|x|}\,dx$$

Moment Generating Function

$$12 \int_{2\,\frac{e^2}{e^4-1}}^{2\,\frac{e}{e^2-1}} \frac{e^{tx}\,(-1+\operatorname{arccsch}(x))\,(-2+\operatorname{arccsch}(x))^2}{\sqrt{x^2+1}x}\,dx_1$$

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

Probability Distribution Function

$$f(x) = -12\,\frac{\left(4\,(\cosh(x))^2\sinh(x) - 8\,(\cosh(x))^2 + \sinh(x) + 7\right)\cosh(x)}{(\sinh(x))^5}$$

Cumulative Distribution Function

$$F(x) = -16\,\frac{e^{8x} - 6\,e^{7x} + 8\,e^{6x} + 8\,e^{5x} - 15\,e^{4x} - 8\,e^{3x} + 8\,e^{2x} + 6\,e^{x} + 1}{e^{8x} - 4\,e^{6x} + 6\,e^{4x} - 4\,e^{2x} + 1}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [ln \circ s \mapsto RootOf\,\big((16+s)\,\_Z^8 - 96\,\_Z^7 + (-4\,s+128)\,\_Z^6 + 128\,\_Z^5 + (6\,s-240)\,\_Z^4 -$$

Survivor Function

$$S(x) = \frac{17\,e^{8x} - 96\,e^{7x} + 124\,e^{6x} + 128\,e^{5x} - 234\,e^{4x} - 128\,e^{3x} + 124\,e^{2x} + 96\,e^{x} + 17}{e^{8x} - 4\,e^{6x} + 6\,e^{4x} - 4\,e^{2x} + 1}$$

Hazard Function

$$h(x) = -12\,\frac{\left(4\,(\cosh(x))^2\sinh(x) - 8\,(\cosh(x))^2 + \sinh(x) + 7\right)\cosh(x)\,(e^{8x} - 4\,e^{6x} + 6\,e^{4x} -}{(\sinh(x))^5\,(17\,e^{8x} - 96\,e^{7x} + 124\,e^{6x} + 128\,e^{5x} - 234\,e^{4x} - 128\,e^{3x} + 124\,e^{2x} + 96}$$

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

Probability Distribution Function

$$f(x) = 12\,\frac{(-1 + \operatorname{arctanh}(x^{-1}))\,(-2 + \operatorname{arctanh}(x^{-1}))^2}{x^2 - 1}$$

Cumulative Distribution Function

$$F(x) = 3\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^4 - 20\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^3 + 48\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^2 - 48\,\mathrm{arct}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(\tanh\left(RootOf\left(-3\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^4 + 3\,\_Z^4 + 20\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^3 -\right.\right.\right.$$

Survivor Function

$$S(x) = 1-3\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^4+20\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^3-48\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^2+48\,\mathrm{a}$$

Hazard Function

$$h(x) = 12\,\frac{\left(-1+\operatorname{arctanh}\right.}{\left(x^2-1\right)\left(1-3\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^4+20\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^3-48\left(\operatorname{arctanh}\left(\frac{e^4-1}{e^4+1}\right)\right)^2+48\right.}$$

Mean

$$\mu = 12\int_{\frac{e^4+1}{e^4-1}}^{\frac{e^2+1}{e^2-1}}\frac{x\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)\left(-2+\operatorname{arctanh}\left(x^{-1}\right)\right)^2}{x^2-1}\,dx$$

Variance

$$\sigma^2 = 12\int_{\frac{e^4+1}{e^4-1}}^{\frac{e^2+1}{e^2-1}}\frac{x^2\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)\left(-2+\operatorname{arctanh}\left(x^{-1}\right)\right)^2}{x^2-1}\,dx-144\left(\int_{\frac{e^4+1}{e^4-1}}^{\frac{e^2+1}{e^2-1}}\frac{x\left(-1+\operatorname{arctanh}\right.}{}\right.$$

Moment Function

$$m(x) = \int_{\frac{-e^{-2}-e^2}{e^{-2}-e^2}}^{\frac{e+e^{-1}}{e-e^{-1}}}12\,\frac{x^r\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)\left(-2+\operatorname{arctanh}\left(x^{-1}\right)\right)^2}{x^2-1}\,dx$$

Moment Generating Function

$$12\int_{\frac{e^4+1}{e^4-1}}^{\frac{e^2+1}{e^2-1}}\frac{e^{tx}\left(-1+\operatorname{arctanh}\left(x^{-1}\right)\right)\left(-2+\operatorname{arctanh}\left(x^{-1}\right)\right)^2}{x^2-1}\,dx_1$$

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

Probability Distribution Function

$$f(x) = 12\,\frac{\left(-1+\operatorname{arcsinh}\left(x^{-1}\right)\right)\left(-2+\operatorname{arcsinh}\left(x^{-1}\right)\right)^2}{\sqrt{x^2+1}\,|x|}$$

Cumulative Distribution Function

$$F(x) = 496+3\,\left(\ln\left(\sqrt{e^8+2\,e^4+1}+e^4-1\right)\right)^4-48\,\ln(x)+576\,\ln(2)-44\,\left(\ln\left(\sqrt{e^8+2\,e^4+1}+\right.\right.$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -495-3\,\left(\ln\left(\sqrt{e^8+2\,e^4+1}+e^4-1\right)\right)^4+48\,\ln(x)-576\,\ln(2)+44\,\left(\ln\left(\sqrt{e^8+2\,e^4+1}\right.\right.$$

Hazard Function

$$h(x) = -12\,\frac{}{\sqrt{x^2+1}\,|x|\,\left(495+3\,\left(\ln\left(\sqrt{e^8+2\,e^4+1}+e^4-1\right)\right)^4-48\,\ln(x)+576\,\ln(2)-44\,\left(\right.\right.}$$

Mean

$$\mu = -48\,\ln\left(e^2+\sqrt{e^4+2\,e^2+1}+2\,e-1\right)+48\,\ln\left(e^2+\sqrt{e^4+2\,e^2+1}-2\,e-1\right)+84\,\mathit{polylog}\left(2\right.$$

Variance

$$\left.\frac{e^2}{e^2+\sqrt{e^4+2\,e^2+1}-1)^2}\right)+6912\,\mathrm{arctanh}\left(2\,\frac{e^2}{\sqrt{e^8+2\,e^4+1}}\right)\mathit{polylog}\left(4,-1/2\,e^2-1/2\,\sqrt{e^8+2\,e^4+1}e^{-2}+1/2\,e^{-2}\right)$$

Moment Function

$$m(x) = \int_{2\,(-e^{-2}+e^2)^{-1}}^{2\,\left(e-e^{-1}\right)^{-1}} 12\,\frac{x^r\left(-1+\mathrm{arcsinh}\left(x^{-1}\right)\right)\left(-2+\mathrm{arcsinh}\left(x^{-1}\right)\right)^2}{\sqrt{x^2+1}\,|x|}\,dx$$

Moment Generating Function

$$\frac{12\,\int_{2\,\frac{e^2}{e^4-1}}^{2\,\frac{e}{e^2-1}}\frac{e^{tx}\left(-1+\mathrm{arcsinh}\left(x^{-1}\right)\right)\left(-2+\mathrm{arcsinh}\left(x^{-1}\right)\right)^2}{\sqrt{x^2+1}x}\,dx_1}{}$$

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

Probability Distribution Function

$$f(x) = 12\,\frac{\left(\left(\cosh\left(x^{-1}\right)\right)^2 \sinh\left(x^{-1}\right) - 5\,\left(\cosh\left(x^{-1}\right)\right)^2 + 7\,\sinh\left(x^{-1}\right) + 1\right)\cosh\left(x^{-1}\right)}{x^2}$$

Cumulative Distribution Function

$$F(x) = -1/16\,\left(3\,e^{8\,x^{-1}} - 40\,e^{7\,x^{-1}} + 180\,e^{6\,x^{-1}} - 264\,e^{5\,x^{-1}} - 110\,e^{4\,x^{-1}} + 264\,e^{3\,x^{-1}} + 180\,e^{2\,x^{-1}} +$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(\ln\left(RootOf\left(3 + 3\,\_Z^8 - 40\,\_Z^7 + 180\,\_Z^6 - 264\,\_Z^5 + (16\,s - 110)\,\_Z^4 + 264\,\_Z^3 +\right.\right.\right.$$

Survivor Function

$$S(x) = 1/16\,\left(3\,e^{8\,x^{-1}} - 40\,e^{7\,x^{-1}} + 180\,e^{6\,x^{-1}} - 264\,e^{5\,x^{-1}} - 94\,e^{4\,x^{-1}} + 264\,e^{3\,x^{-1}} + 180\,e^{2\,x^{-1}} + 40\right.$$

Hazard Function

$$h(x) = 192\,\frac{\left(\left(\cosh\left(x^{-1}\right)\right)^2 \sinh\left(x^{-1}\right) - 5\,\left(\cosh\left(x^{-1}\right)\right)^2 + 7\,\sinh\left(x^{-1}\right) + 1\right)\cosh\left(x^{-1}\right)}{x^2} e^{4\,x^{-1}}\left(3\,e^{8\,\ldots}\right.$$

Mean

$$\mu = -3/4\,Ei\left(1, 4\,\ln\left(-2+\sqrt{5}\right)\right) + 3/4\,Ei\left(1, -4\,\ln\left(-2+\sqrt{5}\right)\right) - \frac{45\,Ei\left(1, 2\,\ln\left(-2+\sqrt{5}\right)\right)}{2} + \ldots$$

Variance

$$\sigma^2 = -3/8\,\left(66\,Ei\left(1, \ln\left(-2+\sqrt{5}\right)\right) - 3\,Ei\left(1, 4\,\ln\left(1+\sqrt{2}\right)\right) + 90\,Ei\left(1, -2\,\ln\left(1+\sqrt{2}\right)\right) - \right.$$

Moment Function

$$m(x) = \int_{-\left(\ln\left(-2+\sqrt{5}\right)\right)^{-1}}^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} 12\,\frac{x^r\left(\left(\cosh\left(x^{-1}\right)\right)^2 \sinh\left(x^{-1}\right) - 5\,\left(\cosh\left(x^{-1}\right)\right)^2 + 7\,\sinh\left(x^{-1}\right) + 1\right)\cosh\ldots}{x^2}$$

Moment Generating Function

$$12\,\int_{-\left(\ln\left(-2+\sqrt{5}\right)\right)^{-1}}^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \frac{e^{tx}\left(\left(\cosh\left(x^{-1}\right)\right)^2 \sinh\left(x^{-1}\right) - 5\,\left(\cosh\left(x^{-1}\right)\right)^2 + 7\,\sinh\left(x^{-1}\right) + 1\right)\cosh\left(x^{-1}\right)}{x^2}\,d\ldots$$

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

Probability Distribution Function

$$f(x) = 12\,\frac{\operatorname{arccsch}\left((x-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2}{\sqrt{x^2-2\,x+2}}$$

Cumulative Distribution Function

$$F(x) = 12\,\int_1^x \frac{\operatorname{arccsch}\left((t-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((t-1)^{-1}\right)\right)^2}{\sqrt{t^2-2\,t+2}}\,dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1 - 12\,\int_1^x \frac{\operatorname{arccsch}\left((t-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((t-1)^{-1}\right)\right)^2}{\sqrt{t^2-2\,t+2}}\,dt$$

Hazard Function

$$h(x) = -12\,\frac{\operatorname{arccsch}\left((x-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2}{\sqrt{x^2-2\,x+2}}\left(-1+12\,\int_1^x \frac{\operatorname{arccsch}\left((t-1)^{-1}\right)\left(\cdots\right.}{\sqrt{t^2\cdots}}\right.$$

Mean

$$\mu = 12\,\int_1^{-1/2\,e^{-1}+1/2\,e+1} \frac{x\operatorname{arccsch}\left((x-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2}{\sqrt{x^2-2\,x+2}}\,dx$$

Variance

$$\sigma^2 = 12\,\int_1^{-1/2\,e^{-1}+1/2\,e+1} \frac{x^2\operatorname{arccsch}\left((x-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2}{\sqrt{x^2-2\,x+2}}\,dx - 144\left(\int_1^{-1/2\,e^{-1}\cdots}\right.$$

Moment Function

$$m(x) = \int_1^{-1/2\,e^{-1}+1/2\,e+1} 12\,\frac{x^r\operatorname{arccsch}\left((x-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2}{\sqrt{x^2-2\,x+2}}\,dx$$

Moment Generating Function

$$\frac{12 \int_{1}^{-1/2\,\mathrm{e}^{-1}+1/2\,\mathrm{e}+1} \frac{\mathrm{e}^{tx}\operatorname{arccsch}\left((x-1)^{-1}\right)\left(-1+\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^{2}}{\sqrt{x^{2}-2\,x+2}}\,\mathrm{d}x_1}{}$$

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

Probability Distribution Function

$$f(x) = -12\,\frac{\left(-1+\operatorname{arctanh}(x)\right)^{2}}{\left(\operatorname{arctanh}(x)\right)^{5}\left(x^{2}-1\right)}$$

Cumulative Distribution Function

$$F(x) = \frac{-6\,\left(\operatorname{arctanh}\left(\frac{\mathrm{e}^2-1}{\mathrm{e}^2+1}\right)\right)^{4}\left(\operatorname{arctanh}(x)\right)^{2}+6\,\left(\operatorname{arctanh}\left(\frac{\mathrm{e}^2-1}{\mathrm{e}^2+1}\right)\right)^{2}\left(\operatorname{arctanh}(x)\right)^{4}+8\,\left(\operatorname{arctan}\right.}{\left(\operatorname{arctanh}\right(}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [\tanh\circ s \mapsto \mathit{RootOf}\left(\left(\left(\left(\operatorname{arctanh}\left(\frac{\mathrm{e}^2-1}{\mathrm{e}^2+1}\right)\right)^{4} s - 6\,\left(\operatorname{arctanh}\left(\frac{\mathrm{e}^2-1}{\mathrm{e}^2+1}\right)\right)^{2} + 8\operatorname{arctanh}\left(\right.\right.\right.\right.$$

Survivor Function

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

Hazard Function

$$h(x) = -12\,\frac{}{\operatorname{arctanh}(x)\left(x^{2}-1\right)\left(\left(\operatorname{arctanh}\left(\frac{\mathrm{e}^2-1}{\mathrm{e}^2+1}\right)\right)^{4}\left(\operatorname{arctanh}(x)\right)^{4}-6\,\left(\operatorname{arctanh}\left(\frac{\mathrm{e}^2-1}{\mathrm{e}^2+1}\right)\right)^{2}\left(\operatorname{arctan}\right.\right.}$$

Mean

$$\mu = -12\,\int_{\frac{\mathrm{e}^2-1}{\mathrm{e}^2+1}}^{1} \frac{x\left(-1+\operatorname{arctanh}(x)\right)^{2}}{\left(\operatorname{arctanh}(x)\right)^{5}\left(x^{2}-1\right)}\,\mathrm{d}x$$

Variance

$$\sigma^2 = -12 \int_{\frac{e^2-1}{e^2+1}}^{1} \frac{x^2 \left(-1+\operatorname{arctanh}(x)\right)^2}{\left(\operatorname{arctanh}(x)\right)^5 \left(x^2-1\right)} \, dx - 144 \left(\int_{\frac{e^2-1}{e^2+1}}^{1} \frac{x \left(-1+\operatorname{arctanh}(x)\right)^2}{\left(\operatorname{arctanh}(x)\right)^5 \left(x^2-1\right)} \, dx \right)^2$$

Moment Function

$$m(x) = \int_{\frac{e-e^{-1}}{e+e^{-1}}}^{1} -12 \, \frac{x^r \left(-1+\operatorname{arctanh}(x)\right)^2}{\left(\operatorname{arctanh}(x)\right)^5 \left(x^2-1\right)} \, dx$$

Moment Generating Function

$$-12 \int_{\frac{e^2-1}{e^2+1}}^{1} \frac{e^{tx} \left(-1+\operatorname{arctanh}(x)\right)^2}{\left(\operatorname{arctanh}(x)\right)^5 \left(x^2-1\right)} \, dx_1$$

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

Probability Distribution Function

$$f(x) = 12 \, \frac{\left(-1+\operatorname{arccsch}(x)\right)^2}{\left(\operatorname{arccsch}(x)\right)^5 \sqrt{x^2+1} \, |x|}$$

Cumulative Distribution Function

$$F(x) = 12 \int_0^x \frac{\left(\operatorname{arccsch}(t)-1\right)^2}{\left(\operatorname{arccsch}(t)\right)^5 \sqrt{t^2+1} \, |t|} \, dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1 - 12 \int_0^x \frac{\left(\operatorname{arccsch}(t)-1\right)^2}{\left(\operatorname{arccsch}(t)\right)^5 \sqrt{t^2+1} \, |t|} \, dt$$

Hazard Function

$$h(x) = -12 \, \frac{\left(-1+\operatorname{arccsch}(x)\right)^2}{\left(\operatorname{arccsch}(x)\right)^5 \sqrt{x^2+1} \, |x|} \left(-1 + 12 \int_0^x \frac{\left(\operatorname{arccsch}(t)-1\right)^2}{\left(\operatorname{arccsch}(t)\right)^5 \sqrt{t^2+1} \, |t|} \, dt \right)^{-1}$$

Mean

$$\mu = 12 \int_0^{2\,\frac{e}{e^2-1}} \frac{(-1+\operatorname{arccsch}(x))^2}{(\operatorname{arccsch}(x))^5\sqrt{x^2+1}}\,dx$$

Variance

$$\sigma^2 = 12 \int_0^{2\,\frac{e}{e^2-1}} \frac{x\,(-1+\operatorname{arccsch}(x))^2}{(\operatorname{arccsch}(x))^5\sqrt{x^2+1}}\,dx - 144\left(\int_0^{2\,\frac{e}{e^2-1}} \frac{(-1+\operatorname{arccsch}(x))^2}{(\operatorname{arccsch}(x))^5\sqrt{x^2+1}}\,dx\right)^2$$

Moment Function

$$m(x) = \int_0^{2\left(e-e^{-1}\right)^{-1}} 12\,\frac{x^r\,(-1+\operatorname{arccsch}(x))^2}{(\operatorname{arccsch}(x))^5\sqrt{x^2+1}\,|x|}\,dx$$

Moment Generating Function

$$12 \int_0^{2\,\frac{e}{e^2-1}} \frac{e^{tx}\,(-1+\operatorname{arccsch}(x))^2}{(\operatorname{arccsch}(x))^5\sqrt{x^2+1}x}\,dx_1$$

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

Probability Distribution Function

$$f(x) = -12\,\sinh(x)\cosh(x)\left(-(\cosh(x))^2 + 2\,\sinh(x)\right)$$

Cumulative Distribution Function

$$F(x) = -(\sinh(x))^2\left(-3\,(\cosh(x))^2 + 8\,\sinh(x) - 3\right)$$

Inverse Cumulative Distribution Function

$$F^{-1} = [ln \circ s \mapsto RootOf\left(3 + 3\_Z^8 - 16\_Z^7 + 12\_Z^6 + 48\_Z^5 + (-16\,s - 30)\_Z^4 - 48\_Z^3 + 12\right.$$

Survivor Function

$$S(x) = -3\,(\cosh(x))^4 + 8\,(\cosh(x))^2\sinh(x) - 8\,\sinh(x) + 4$$

Hazard Function

$$h(x) = 12\,\frac{\sinh(x)\cosh(x)}{-3\,(\cosh(x))^2 + 2\,\sinh(x) + 4}$$

Mean

$$\mu = 1/24\,\frac{828\,\sqrt{2}\ln\left(1+\sqrt{2}\right)-623\,\sqrt{2}+1173\,\ln\left(1+\sqrt{2}\right)-872}{17+12\,\sqrt{2}}$$

Variance

$$\sigma^2 = -\frac{1791585\,\left(\ln\left(1+\sqrt{2}\right)\right)^2+865248\,\ln\left(1+\sqrt{2}\right)+1266840\,\sqrt{2}\left(\ln\left(1+\sqrt{2}\right)\right)^2-2165390+}{576\,\left(17+12\,\sqrt{2}\right)^2}$$

Moment Function

$$m(x) = \int_0^{\ln\left(1+\sqrt{2}\right)} -12\,x^r\sinh\left(x\right)\cosh\left(x\right)\left(-\left(\cosh\left(x\right)\right)^2+2\,\sinh\left(x\right)\right)\,dx$$

Moment Generating Function

$$12\,\frac{-1530+4352\,t+68\,t^5+17\,t^6-1080\,\sqrt{2}+2346\,\left(1+\sqrt{2}\right)^t+68\,t^5\left(1+\sqrt{2}\right)^t\sqrt{2}-576\,t^4\left(1-\right.}{}$$