

"InverseGaussianRV(2,3)"

$$[x \mapsto \sqrt{\frac{1}{\pi x^3}} e^{-1/9 \frac{(x-3)^2}{x}}]$$

$$t \mapsto t^2$$

Probability Distribution Function

$$f(x) = 1/2 \frac{\sqrt{x^{-3/2}}}{\sqrt{\pi} \sqrt{x}} e^{-1/9 \frac{(\sqrt{x}-3)^2}{\sqrt{x}}}$$

Cumulative Distribution Function

$$F(x) = 1/2 \frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{t^{-3/2}}}{\sqrt{t}} e^{-1/9 \frac{(\sqrt{t}-3)^2}{\sqrt{t}}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1/2 \frac{1}{\sqrt{\pi}} \left(2 \sqrt{\pi} - \int_0^x \frac{\sqrt{t^{-3/2}}}{\sqrt{t}} e^{-1/9 \frac{(\sqrt{t}-3)^2}{\sqrt{t}}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{x^{-3/2}}}{\sqrt{x}} e^{-1/9 \frac{(\sqrt{x}-3)^2}{\sqrt{x}}} \left(-2 \sqrt{\pi} + \int_0^x \frac{\sqrt{t^{-3/2}}}{\sqrt{t}} e^{-1/9 \frac{(\sqrt{t}-3)^2}{\sqrt{t}}} dt \right)^{-1}$$

Mean

$$\mu = \frac{45}{2}$$

Variance

$$\sigma^2 = \frac{57105}{8}$$

Moment Function

$$m(x) = 2/3 \frac{e^{2/3} K_{-1/2+2r} (2/3) \sqrt{39}^r}{\sqrt{\pi}}$$

Moment Generating Function

$$\int_0^\infty 1/2 \frac{1}{\sqrt{\pi} x^{5/4}} e^{1/9 \frac{9 t x^{3/2} + 6 \sqrt{x} - x - 9}{\sqrt{x}}} dx_1$$

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

Probability Distribution Function

$$f(x) = 2 \frac{1}{x \sqrt{\pi} |x|} e^{-1/9 \frac{(x^2-3)^2}{x^2}}$$

Cumulative Distribution Function

$$F(x) = 2 \frac{1}{\sqrt{\pi}} \int_0^x \frac{1}{t |t|} e^{-1/9 \frac{(t^2-3)^2}{t^2}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - 2 \int_0^x \frac{1}{t |t|} e^{-1/9 \frac{(t^2-3)^2}{t^2}} dt \right)$$

Hazard Function

$$h(x) = 2 \frac{1}{x |x|} e^{-1/9 \frac{(x^2-3)^2}{x^2}} \left(\sqrt{\pi} - 2 \int_0^x \frac{1}{t |t|} e^{-1/9 \frac{(t^2-3)^2}{t^2}} dt \right)^{-1}$$

Mean

$$mu = 2 \frac{e^{2/3} K_0(2/3)}{\sqrt{\pi}}$$

Variance

$$sigma^2 = -\frac{4 e^{4/3} (K_0(2/3))^2 - 3 \pi}{\pi}$$

Moment Function

$$m(x) = \int_0^\infty 2 \frac{x^r}{x \sqrt{\pi} |x|} e^{-1/9 \frac{(x^2-3)^2}{x^2}} dx$$

Moment Generating Function

$$\int_0^\infty 2 \frac{1}{\sqrt{\pi} x^2} e^{1/9 \frac{9 t x^3 - x^4 + 6 x^2 - 9}{x^2}} dx_1$$

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

Probability Distribution Function

$$f(x) = \frac{\text{signum}(x)}{\sqrt{x}\sqrt{\pi}} e^{-1/9 \frac{(-1+3x)^2}{x}}$$

Cumulative Distribution Function

$$F(x) = 1/2 e^{4/3} \operatorname{erf}\left(1/3 \frac{3x+1}{\sqrt{x}}\right) + 1/2 \operatorname{erf}\left(1/3 \frac{-1+3x}{\sqrt{x}}\right) - 1/2 e^{4/3} + 1/2$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \left(\operatorname{RootOf}\left(\operatorname{erf}\left(1/3 \frac{Z^2-3}{-Z}\right) - e^{4/3} \operatorname{erf}\left(1/3 \frac{-Z^2+3}{-Z}\right) + e^{4/3} + 2s - 1\right)\right)^{-2}]$$

Survivor Function

$$S(x) = 1/2 - 1/2 \operatorname{erf}\left(1/3 \frac{-1+3x}{\sqrt{x}}\right) - 1/2 e^{4/3} \operatorname{erf}\left(1/3 \frac{3x+1}{\sqrt{x}}\right) + 1/2 e^{4/3}$$

Hazard Function

$$h(x) = -2 \frac{\text{signum}(x)}{\sqrt{x}\sqrt{\pi}} e^{-1/9 \frac{(-1+3x)^2}{x}} \left(e^{4/3} \operatorname{erf}\left(1/3 \frac{3x+1}{\sqrt{x}}\right) - e^{4/3} + \operatorname{erf}\left(1/3 \frac{-1+3x}{\sqrt{x}}\right) - 1 \right)^{-1}$$

Mean

$$\mu = 5/6$$

Variance

$$\sigma^2 = 2/3$$

Moment Function

$$m(x) = \int_0^\infty \frac{x^r \text{signum}(x)}{\sqrt{x}\sqrt{\pi}} e^{-1/9 \frac{(-1+3x)^2}{x}} dx$$

Moment Generating Function

$$\lim_{x \rightarrow \infty} 1/2 \frac{e^{2/3-2/3\sqrt{-t+1}}}{\sqrt{-t+1}} \left(e^{4/3\sqrt{-t+1}} \operatorname{erf} \left(1/3 \frac{3\sqrt{-t+1}x+1}{\sqrt{x}} \right) - e^{4/3\sqrt{-t+1}} + \operatorname{erf} \left(1/3 \frac{3\sqrt{-t+1}x}{\sqrt{x}} \right) \right)$$

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(\tan(x))^{-1}} (1 + (\tan(x))^2)}{|\tan(x)| \sqrt{\pi}} e^{-1/9 \frac{(\tan(x)-3)^2}{\tan(x)}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(\tan(t))^{-1}} (1 + (\tan(t))^2)}{|\tan(t)|} e^{-1/9 \frac{(\tan(t)-3)^2}{\tan(t)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - \int_0^x \frac{1}{(\cos(t))^2} \sqrt{\frac{\cos(t)}{\sin(t)}} e^{1/9 \frac{6 \cos(t) \sin(t) - 8 (\cos(t))^2 - 1}{\cos(t) \sin(t)}} \left| \frac{\cos(t)}{\sin(t)} \right| dt \right)$$

Hazard Function

$$h(x) = \frac{1}{(\cos(x))^2} e^{1/9 \frac{6 \cos(x) \sin(x) - 8 (\cos(x))^2 - 1}{\cos(x) \sin(x)}} \sqrt{\frac{\cos(x)}{\sin(x)}} \left| \frac{\cos(x)}{\sin(x)} \right| \left(\sqrt{\pi} - \int_0^x \frac{1}{(\cos(t))^2} \sqrt{\frac{\cos(t)}{\sin(t)}} e^{1/9 \frac{6 \cos(t) \sin(t) - 8 (\cos(t))^2 - 1}{\cos(t) \sin(t)}} \left| \frac{\cos(t)}{\sin(t)} \right| dt \right)$$

Mean

$$mu = \frac{1}{\sqrt{\pi}} \int_0^{\pi/2} \frac{x}{(\sin(x))^{3/2} \sqrt{\cos(x)}} e^{1/9 \frac{6 \cos(x) \sin(x) - 8 (\cos(x))^2 - 1}{\cos(x) \sin(x)}} dx$$

Variance

$$sigma^2 = \frac{1}{\pi^{3/2}} \left(- \left(\int_0^{\pi/2} \frac{x}{(\sin(x))^{3/2} \sqrt{\cos(x)}} e^{1/9 \frac{6 \cos(x) \sin(x) - 8 (\cos(x))^2 - 1}{\cos(x) \sin(x)}} dx \right)^2 \sqrt{\pi} + \int_0^{\pi/2} \frac{1}{(\sin(x))^{3/2} \sqrt{\cos(x)}} e^{1/9 \frac{6 \cos(x) \sin(x) - 8 (\cos(x))^2 - 1}{\cos(x) \sin(x)}} dx \right)$$

Moment Function

$$m(x) = \int_0^{\pi/2} x^r \frac{\sqrt{(\tan(x))^{-1}} (1 + (\tan(x))^2)}{|\tan(x)| \sqrt{\pi}} e^{-1/9 \frac{(\tan(x)-3)^2}{\tan(x)}} dx$$

Moment Generating Function

$$\frac{1}{\sqrt{\pi}} \int_0^{\pi/2} \frac{1}{(\sin(x))^{3/2} \sqrt{\cos(x)}} e^{1/9 \frac{9tx \sin(x) \cos(x) + 6 \cos(x) \sin(x) - 8 (\cos(x))^2 - 1}{\cos(x) \sin(x)}} dx$$

1

$$t \mapsto e^t$$

Probability Distribution Function

$$f(x) = \frac{\sqrt{(\ln(x))^{-3}}}{\sqrt{\pi}x} e^{-1/9 \frac{(\ln(x)-3)^2}{\ln(x)}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_1^x \frac{\sqrt{(\ln(t))^{-3}}}{t} e^{-1/9 \frac{(\ln(t)-3)^2}{\ln(t)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - \int_1^x \frac{\sqrt{(\ln(t))^{-3}}}{t} e^{-1/9 \frac{(\ln(t)-3)^2}{\ln(t)}} dt \right)$$

Hazard Function

$$h(x) = \frac{\sqrt{(\ln(x))^{-3}}}{x} e^{-1/9 \frac{(\ln(x)-3)^2}{\ln(x)}} \left(\sqrt{\pi} - \int_1^x \frac{\sqrt{(\ln(t))^{-3}}}{t} e^{-1/9 \frac{(\ln(t)-3)^2}{\ln(t)}} dt \right)^{-1}$$

Mean

$$\mu = \infty$$

Variance

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

Moment Function

$$m(x) = \infty$$

Moment Generating Function

$$\int_1^\infty \frac{1}{x (\ln(x))^{3/2} \sqrt{\pi}} e^{-1/9 \frac{-9tx \ln(x) + (\ln(x))^2 - 6 \ln(x) + 9}{\ln(x)}} dx_1$$

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

Probability Distribution Function

$$f(x) = \frac{e^{-x/2-1/9e^x+2/3-e^{-x}}}{\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = \int_{-\infty}^x \frac{e^{-t/2-1/9e^t+2/3-e^{-t}}}{\sqrt{\pi}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1 - \int_{-\infty}^x \frac{e^{-t/2-1/9e^t+2/3-e^{-t}}}{\sqrt{\pi}} dt$$

Hazard Function

$$h(x) = -\frac{e^{-1/18(2e^{2x}+9xe^x-12e^x+18)}e^{-x}}{\sqrt{\pi}} \left(-1 + \int_{-\infty}^x \frac{e^{-t/2-1/9e^t+2/3-e^{-t}}}{\sqrt{\pi}} dt \right)^{-1}$$

Mean

$$\mu = \int_{-\infty}^\infty \frac{xe^{-x/2-1/9e^x+2/3-e^{-x}}}{\sqrt{\pi}} dx$$

Variance

$$sigma^2 = \int_{-\infty}^{\infty} \frac{x^2 e^{-x/2-1/9 e^x+2/3-e^{-x}}}{\sqrt{\pi}} dx - \left(\int_{-\infty}^{\infty} \frac{x e^{-x/2-1/9 e^x+2/3-e^{-x}}}{\sqrt{\pi}} dx \right)^2$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} \frac{x^r e^{-x/2-1/9 e^x+2/3-e^{-x}}}{\sqrt{\pi}} dx$$

Moment Generating Function

$$\int_{-\infty}^{\infty} \frac{e^{tx-x/2-1/9 e^x+2/3-e^{-x}}}{\sqrt{\pi}} dx_1$$

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

Probability Distribution Function

$$f(x) = \frac{1}{\sqrt{\pi}x} \sqrt{-(\ln(x))^{-3}} e^{1/9 \frac{(\ln(x)+3)^2}{\ln(x)}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{1}{t} \sqrt{-(\ln(t))^{-3}} e^{1/9 \frac{(\ln(t)+3)^2}{\ln(t)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - \int_0^x \frac{1}{t} \sqrt{-(\ln(t))^{-3}} e^{1/9 \frac{(\ln(t)+3)^2}{\ln(t)}} dt \right)$$

Hazard Function

$$h(x) = -\frac{1}{x} \sqrt{-(\ln(x))^{-3}} e^{1/9 \frac{(\ln(x)+3)^2}{\ln(x)}} \left(-\sqrt{\pi} + \int_0^x \frac{1}{t} \sqrt{-(\ln(t))^{-3}} e^{1/9 \frac{(\ln(t)+3)^2}{\ln(t)}} dt \right)^{-1}$$

Mean

$$\mu = e^{2/3-2/3\sqrt{10}}$$

Variance

$$\sigma^2 = e^{2/3-2/3\sqrt{19}} - e^{4/3-4/3\sqrt{10}}$$

Moment Function

$$m(x) = e^{2/3-2/3\sqrt{9x+1}}$$

Moment Generating Function

$$\frac{1}{\sqrt{\pi}} \int_0^1 \frac{1}{(-\ln(x))^{3/2} x} e^{1/9 \frac{9tx \ln(x) + (\ln(x))^2 + 6 \ln(x) + 9}{\ln(x)}} dx$$

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

Probability Distribution Function

$$f(x) = \frac{e^{x/2-1/9e^{-x}+2/3-e^x}}{\sqrt{\pi}}$$

Cumulative Distribution Function

$$F(x) = \int_{-\infty}^x \frac{e^{t/2-e^t+2/3-1/9e^{-t}}}{\sqrt{\pi}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = 1 - \int_{-\infty}^x \frac{e^{t/2-e^t+2/3-1/9e^{-t}}}{\sqrt{\pi}} dt$$

Hazard Function

$$h(x) = -\frac{e^{1/18(-18e^{2x}+9xe^x+12e^x-2)}e^{-x}}{\sqrt{\pi}} \left(-1 + \int_{-\infty}^x \frac{e^{t/2-e^t+2/3-1/9e^{-t}}}{\sqrt{\pi}} dt \right)^{-1}$$

Mean

$$\mu = \int_{-\infty}^{\infty} \frac{x e^{x/2-1/9 e^{-x}+2/3-e^x}}{\sqrt{\pi}} dx$$

Variance

$$\sigma^2 = \int_{-\infty}^{\infty} \frac{x^2 e^{x/2-1/9 e^{-x}+2/3-e^x}}{\sqrt{\pi}} dx - \left(\int_{-\infty}^{\infty} \frac{x e^{x/2-1/9 e^{-x}+2/3-e^x}}{\sqrt{\pi}} dx \right)^2$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} \frac{x^r e^{x/2-1/9 e^{-x}+2/3-e^x}}{\sqrt{\pi}} dx$$

Moment Generating Function

$$\int_{-\infty}^{\infty} \frac{e^{tx+x/2-1/9 e^{-x}+2/3-e^x}}{\sqrt{\pi}} dx_1$$

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(e^x-1)^{-1}}}{\sqrt{\pi} |e^x-1|} e^{-1/9 \frac{e^{2x}-9xe^x-8e^x+9x+16}{e^x-1}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(e^t-1)^{-1}}}{|e^t-1|} e^{1/9 \frac{-e^{2t}+9te^t+8e^t-9t-16}{e^t-1}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - \int_0^x \frac{\sqrt{(e^t-1)^{-1}}}{|e^t-1|} e^{-1/9 \frac{e^{2t}-9te^t-8e^t+9t+16}{e^t-1}} dt \right)$$

Hazard Function

$$h(x) = \frac{\sqrt{(e^x - 1)^{-1}}}{|e^x - 1|} e^{-1/9 \frac{e^{2x} - 9xe^x - 8e^x + 9x + 16}{e^x - 1}} \left(\sqrt{\pi} - \int_0^x \frac{\sqrt{(e^t - 1)^{-1}}}{|e^t - 1|} e^{1/9 \frac{-e^{2t} + 9te^t + 8e^t - 9t - 16}{e^t - 1}} dt \right)^{-1}$$

Mean

$$mu = \int_0^\infty \frac{x}{\sqrt{\pi} (e^x - 1)^{3/2}} e^{-1/9 \frac{e^{2x} - 9xe^x - 8e^x + 9x + 16}{e^x - 1}} dx$$

Variance

$$sigma^2 = \int_0^\infty \frac{x^2}{\sqrt{\pi} (e^x - 1)^{3/2}} e^{-1/9 \frac{e^{2x} - 9xe^x - 8e^x + 9x + 16}{e^x - 1}} dx - \left(\int_0^\infty \frac{x}{\sqrt{\pi} (e^x - 1)^{3/2}} e^{-1/9 \frac{e^{2x} - 9xe^x - 8e^x + 9x + 16}{e^x - 1}} dx \right)^2$$

Moment Function

$$m(x) = \int_0^\infty \frac{x^r \sqrt{(e^x - 1)^{-1}}}{\sqrt{\pi} |e^x - 1|} e^{-1/9 \frac{e^{2x} - 9xe^x - 8e^x + 9x + 16}{e^x - 1}} dx$$

Moment Generating Function

$$\int_0^\infty \frac{1}{\sqrt{\pi} (e^x - 1)^{3/2}} e^{-1/9 \frac{-9txe^x - 9xe^x + 9tx + e^{2x} - 8e^x + 9x + 16}{e^x - 1}} dx_1$$

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(e^{x^{-1}} - 2)^{-1}}}{\sqrt{\pi} x^2 |e^{x^{-1}} - 2|} e^{-1/9 \frac{1}{(e^{x^{-1}} - 2)^x} \left(e^{2x^{-1}} x - 10e^{x^{-1}} x - 9e^{x^{-1}} + 25x + 18 \right)}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(e^{t^{-1}} - 2)^{-1}}}{t^2 |e^{t^{-1}} - 2|} e^{1/9 \frac{1}{(e^{t^{-1}} - 2)^t} \left(-e^{2t^{-1}} t + 10e^{t^{-1}} t + 9e^{t^{-1}} - 25t - 18 \right)} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -\frac{1}{\sqrt{\pi}} \left(-\sqrt{\pi} + \int_0^x \frac{\sqrt{(e^{t^{-1}} - 2)^{-1}}}{t^2 |e^{t^{-1}} - 2|} e^{\frac{1}{9} \frac{1}{(e^{t^{-1}} - 2)^x} (-e^{2t^{-1}}t + 10e^{t^{-1}}t + 9e^{t^{-1}} - 25t - 18)} dt \right)$$

Hazard Function

$$h(x) = \frac{\sqrt{(e^{x^{-1}} - 2)^{-1}}}{x^2 |e^{x^{-1}} - 2|} e^{\frac{1}{9} \frac{1}{(e^{x^{-1}} - 2)^x} (-e^{2x^{-1}}x + 10e^{x^{-1}}x + 9e^{x^{-1}} - 25x - 18)} \left(\sqrt{\pi} - \int_0^x \frac{\sqrt{(e^{t^{-1}} - 2)^{-1}}}{t^2 |e^{t^{-1}} - 2|} e^{-1/9 \frac{1}{(e^{t^{-1}} - 2)^t} (-e^{2t^{-1}}t + 10e^{t^{-1}}t + 9e^{t^{-1}} - 25t - 18)} dt \right)$$

Mean

$$\mu = \frac{1}{\sqrt{\pi}} \int_0^{(\ln(2))^{-1}} \frac{1}{x (e^{x^{-1}} - 2)^{3/2}} e^{\frac{1}{9} \frac{1}{(e^{x^{-1}} - 2)^x} (-e^{2x^{-1}}x + 10e^{x^{-1}}x + 9e^{x^{-1}} - 25x - 18)} dx$$

Variance

$$\sigma^2 = -\frac{1}{\pi^{3/2}} \left(\left(\int_0^{(\ln(2))^{-1}} \frac{1}{x (e^{x^{-1}} - 2)^{3/2}} e^{\frac{1}{9} \frac{1}{(e^{x^{-1}} - 2)^x} (-e^{2x^{-1}}x + 10e^{x^{-1}}x + 9e^{x^{-1}} - 25x - 18)} dx \right)^2 - \mu^2 \right)$$

Moment Function

$$m(x) = \int_0^{(\ln(2))^{-1}} \frac{x^r \sqrt{(e^{x^{-1}} - 2)^{-1}}}{\sqrt{\pi} x^2 |e^{x^{-1}} - 2|} e^{-1/9 \frac{1}{(e^{x^{-1}} - 2)^x} (e^{2x^{-1}}x - 10e^{x^{-1}}x - 9e^{x^{-1}} + 25x + 18)} dx$$

Moment Generating Function

$$\frac{1}{\sqrt{\pi}} \int_0^{(\ln(2))^{-1}} \frac{1}{(e^{x^{-1}} - 2)^{3/2} x^2} e^{\frac{1}{9} \frac{1}{(e^{x^{-1}} - 2)^x} (9tx^2e^{x^{-1}} - e^{2x^{-1}}x - 18tx^2 + 10e^{x^{-1}}x + 9e^{x^{-1}} - 25x - 18)} dx$$

1

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

Probability Distribution Function

$$f(x) = -\frac{\sqrt{(\operatorname{arctanh}(x))^{-3}}}{\sqrt{\pi} (x^2 - 1)} e^{-1/9 \frac{(\operatorname{arctanh}(x) - 3)^2}{\operatorname{arctanh}(x)}}$$

Cumulative Distribution Function

$$F(x) = -\frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(\operatorname{arctanh}(t))^{-3}}}{t^2 - 1} e^{-1/9 \frac{(\operatorname{arctanh}(t)-3)^2}{\operatorname{arctanh}(t)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} + \int_0^x \frac{\sqrt{(\operatorname{arctanh}(t))^{-3}}}{t^2 - 1} e^{-1/9 \frac{(\operatorname{arctanh}(t)-3)^2}{\operatorname{arctanh}(t)}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{(\operatorname{arctanh}(x))^{-3}}}{x^2 - 1} e^{-1/9 \frac{(\operatorname{arctanh}(x)-3)^2}{\operatorname{arctanh}(x)}} \left(\sqrt{\pi} + \int_0^x \frac{\sqrt{(\operatorname{arctanh}(t))^{-3}}}{t^2 - 1} e^{-1/9 \frac{(\operatorname{arctanh}(t)-3)^2}{\operatorname{arctanh}(t)}} dt \right)^{-1}$$

Mean

$$\mu = -\frac{1}{\sqrt{\pi}} \int_0^1 \frac{x}{(\operatorname{arctanh}(x))^{3/2} (x^2 - 1)} e^{-1/9 \frac{(\operatorname{arctanh}(x)-3)^2}{\operatorname{arctanh}(x)}} dx$$

Variance

$$\sigma^2 = -\frac{1}{\pi^{3/2}} \left(\left(\int_0^1 \frac{x}{(\operatorname{arctanh}(x))^{3/2} (x^2 - 1)} e^{-1/9 \frac{(\operatorname{arctanh}(x)-3)^2}{\operatorname{arctanh}(x)}} dx \right)^2 \sqrt{\pi} + \int_0^1 \frac{x^2}{(\operatorname{arctanh}(x))^{3/2} (x^2 - 1)} e^{-1/9 \frac{(\operatorname{arctanh}(x)-3)^2}{\operatorname{arctanh}(x)}} dx \right)$$

Moment Function

$$m(x) = \int_0^1 -\frac{x^r \sqrt{(\operatorname{arctanh}(x))^{-3}}}{\sqrt{\pi} (x^2 - 1)} e^{-1/9 \frac{(\operatorname{arctanh}(x)-3)^2}{\operatorname{arctanh}(x)}} dx$$

Moment Generating Function

$$-\frac{1}{\sqrt{\pi}} \int_0^1 \frac{1}{(\operatorname{arctanh}(x))^{3/2} (x^2 - 1)} e^{-1/9 \frac{-9 t x \operatorname{arctanh}(x) + (\operatorname{arctanh}(x))^2 - 6 \operatorname{arctanh}(x) + 9}{\operatorname{arctanh}(x)}} dx$$

1

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

Probability Distribution Function

$$f(x) = \frac{\text{signum}(x) \sqrt{(\operatorname{arcsinh}(x))^{-1}}}{\operatorname{arcsinh}(x) \sqrt{\pi} \sqrt{x^2 + 1}} e^{-1/9 \frac{(\operatorname{arcsinh}(x)-3)^2}{\operatorname{arcsinh}(x)}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\text{signum}(t) \sqrt{(\operatorname{arcsinh}(t))^{-1}}}{\operatorname{arcsinh}(t) \sqrt{t^2 + 1}} e^{-1/9 \frac{(\operatorname{arcsinh}(t)-3)^2}{\operatorname{arcsinh}(t)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - \int_0^x \frac{\text{signum}(t) \sqrt{(\operatorname{arcsinh}(t))^{-1}}}{\operatorname{arcsinh}(t) \sqrt{t^2 + 1}} e^{-1/9 \frac{(\operatorname{arcsinh}(t)-3)^2}{\operatorname{arcsinh}(t)}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\text{signum}(x) \sqrt{(\operatorname{arcsinh}(x))^{-1}}}{\operatorname{arcsinh}(x) \sqrt{x^2 + 1}} e^{-1/9 \frac{(\operatorname{arcsinh}(x)-3)^2}{\operatorname{arcsinh}(x)}} \left(-\sqrt{\pi} + \int_0^x \frac{\text{signum}(t) \sqrt{(\operatorname{arcsinh}(t))^{-1}}}{\operatorname{arcsinh}(t) \sqrt{t^2 + 1}} dt \right)$$

Mean

$$mu = \infty$$

Variance

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

Moment Function

$$m(x) = \infty$$

Moment Generating Function

$$\int_0^\infty \frac{1}{(\operatorname{arcsinh}(x))^{3/2} \sqrt{x^2 + 1} \sqrt{\pi}} e^{-1/9 \frac{-9tx \operatorname{arcsinh}(x) + (\operatorname{arcsinh}(x))^2 - 6 \operatorname{arcsinh}(x) + 9}{\operatorname{arcsinh}(x)}} dx_1$$

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

Probability Distribution Function

$$f(x) = \frac{\operatorname{signum}(x) \sqrt{(\sinh(x))^{-1}} \cosh(x)}{\sinh(x) \sqrt{\pi}} e^{-1/9 \frac{(\sinh(x)-3)^2}{\sinh(x)}}$$

Cumulative Distribution Function

$$F(x) = \text{undefined}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \text{undefined}$$

Hazard Function

$$h(x) = \frac{\operatorname{signum}(x) \sqrt{(\sinh(x))^{-1}} \cosh(x) \text{undefined}}{\sinh(x)} e^{-1/9 \frac{(\sinh(x)-3)^2}{\sinh(x)}}$$

Mean

$$\mu = \int_0^\infty \frac{\cosh(x) x}{(\sinh(x))^{3/2} \sqrt{\pi}} e^{1/9 \frac{-(\cosh(x))^2 + 6 \sinh(x) - 8}{\sinh(x)}} dx$$

Variance

$$\sigma^2 = \int_0^\infty \frac{\cosh(x) x^2}{(\sinh(x))^{3/2} \sqrt{\pi}} e^{1/9 \frac{-(\cosh(x))^2 + 6 \sinh(x) - 8}{\sinh(x)}} dx - \left(\int_0^\infty \frac{\cosh(x) x}{(\sinh(x))^{3/2} \sqrt{\pi}} e^{1/9 \frac{-(\cosh(x))^2 + 6 \sinh(x) - 8}{\sinh(x)}} dx \right)^2$$

Moment Function

$$m(x) = \int_0^\infty \frac{x^r \operatorname{signum}(x) \sqrt{(\sinh(x))^{-1}} \cosh(x)}{\sinh(x) \sqrt{\pi}} e^{-1/9 \frac{(\sinh(x)-3)^2}{\sinh(x)}} dx$$

Moment Generating Function

$$\int_0^\infty \frac{\cosh(x)}{(\sinh(x))^{3/2} \sqrt{\pi}} e^{1/9 \frac{9 t x \sinh(x) - (\cosh(x))^2 + 6 \sinh(x) - 8}{\sinh(x)}} dx_1$$

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(-1 + \operatorname{arccsch}(x))^{-3}}}{\sqrt{\pi}\sqrt{x^2+1}|x|} e^{-1/9 \frac{(-4 + \operatorname{arccsch}(x))^2}{-1 + \operatorname{arccsch}(x)}}$$

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

Probability Distribution Function

$$f(x) = \frac{\operatorname{signum}(x) \cosh(x)}{\sinh(x) \sqrt{\pi} |\sinh(x) - 1|} \sqrt{-\frac{\sinh(x)}{\sinh(x) - 1}} e^{1/9 \frac{(4 \sinh(x) - 1)^2}{\sinh(x)(\sinh(x) - 1)}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\operatorname{signum}(t) \cosh(t)}{\sinh(t) |\sinh(t) - 1|} \sqrt{-\frac{\sinh(t)}{\sinh(t) - 1}} e^{1/9 \frac{(4 \sinh(t) - 1)^2}{\sinh(t)(\sinh(t) - 1)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -\frac{1}{\sqrt{\pi}} \left(-\sqrt{\pi} + \int_0^x \frac{\operatorname{signum}(t) \cosh(t)}{\sinh(t) |\sinh(t) - 1|} \sqrt{-\frac{\sinh(t)}{\sinh(t) - 1}} e^{1/9 \frac{(4 \sinh(t) - 1)^2}{\sinh(t)(\sinh(t) - 1)}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\operatorname{signum}(x) \cosh(x)}{\sinh(x) |\sinh(x) - 1|} \sqrt{-\frac{\sinh(x)}{\sinh(x) - 1}} e^{1/9 \frac{(4 \sinh(x) - 1)^2}{\sinh(x)(\sinh(x) - 1)}} \left(-\sqrt{\pi} + \int_0^x \frac{\operatorname{signum}(t) \cosh(t)}{\sinh(t) |\sinh(t) - 1|} \sqrt{-\frac{\sinh(t)}{\sinh(t) - 1}} e^{1/9 \frac{(4 \sinh(t) - 1)^2}{\sinh(t)(\sinh(t) - 1)}} dt \right)$$

Mean

$$mu = \frac{1}{\sqrt{\pi}} \int_0^{\ln(1+\sqrt{2})} \frac{x \cosh(x)}{\sqrt{\sinh(x)} (1 - \sinh(x))^{3/2}} e^{-1/9 \frac{-16 (\cosh(x))^2 + 8 \sinh(x) + 15}{\sinh(x)(\sinh(x) - 1)}} dx$$

Variance

$$\sigma^2 = \frac{1}{\pi^{3/2}} \left(- \left(\int_0^{\ln(1+\sqrt{2})} \frac{x \cosh(x)}{\sqrt{\sinh(x)} (1 - \sinh(x))^{3/2}} e^{-1/9 \frac{-16(\cosh(x))^2 + 8 \sinh(x) + 15}{\sinh(x)(\sinh(x)-1)}} dx \right)^2 \sqrt{\pi} + \dots \right)$$

Moment Function

$$m(x) = \int_0^{\ln(1+\sqrt{2})} \frac{x^r \operatorname{signum}(x) \cosh(x)}{\sinh(x) \sqrt{\pi} |\sinh(x) - 1|} \sqrt{-\frac{\sinh(x)}{\sinh(x) - 1}} e^{1/9 \frac{(4 \sinh(x) - 1)^2}{\sinh(x)(\sinh(x)-1)}} dx$$

Moment Generating Function

$$\frac{1}{\sqrt{\pi}} \int_0^{\ln(1+\sqrt{2})} \frac{\cosh(x)}{\sqrt{\sinh(x)} (1 - \sinh(x))^{3/2}} e^{-1/9 \frac{-9(\cosh(x))^2 tx + 9 tx \sinh(x) - 16(\cosh(x))^2 + 9 tx + 8 \sinh(x) + 15}{\sinh(x)(\sinh(x)-1)}} dx$$

1

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(-1 + \operatorname{arctanh}(x^{-1}))^{-3}}}{\sqrt{\pi} (x^2 - 1)} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(x^{-1}))^2}{-1 + \operatorname{arctanh}(x^{-1})}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_1^x \frac{\sqrt{(-1 + \operatorname{arctanh}(t^{-1}))^{-3}}}{t^2 - 1} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(t^{-1}))^2}{-1 + \operatorname{arctanh}(t^{-1})}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -\frac{1}{\sqrt{\pi}} \left(-\sqrt{\pi} + \int_1^x \frac{\sqrt{(-1 + \operatorname{arctanh}(t^{-1}))^{-3}}}{t^2 - 1} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(t^{-1}))^2}{-1 + \operatorname{arctanh}(t^{-1})}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{(-1 + \operatorname{arctanh}(x^{-1}))^{-3}}}{x^2 - 1} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(x^{-1}))^2}{-1 + \operatorname{arctanh}(x^{-1})}} \left(-\sqrt{\pi} + \int_1^x \frac{\sqrt{(-1 + \operatorname{arctanh}(t^{-1}))^{-3}}}{t^2 - 1} dt \right)$$

Mean

$$mu = \frac{1}{\sqrt{\pi}} \int_1^{\frac{e^2+1}{e^2-1}} \frac{x \sqrt{(-1 + \operatorname{arctanh}(x^{-1}))^{-3}}}{x^2 - 1} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(x^{-1}))^2}{-1 + \operatorname{arctanh}(x^{-1})}} dx$$

Variance

$$sigma^2 = \frac{1}{\pi^{3/2}} \left(- \left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x \sqrt{(-1 + \operatorname{arctanh}(x^{-1}))^{-3}}}{x^2 - 1} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(x^{-1}))^2}{-1 + \operatorname{arctanh}(x^{-1})}} dx \right)^2 \sqrt{\pi} + \int_1^{\frac{e^2+1}{e^2-1}} \frac{x \sqrt{(-1 + \operatorname{arctanh}(x^{-1}))^{-3}}}{x^2 - 1} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(x^{-1}))^2}{-1 + \operatorname{arctanh}(x^{-1})}} dx \right)$$

Moment Function

$$m(x) = \int_1^{\frac{e+e^{-1}}{e-e^{-1}}} \frac{x^r \sqrt{(-1 + \operatorname{arctanh}(x^{-1}))^{-3}}}{\sqrt{\pi} (x^2 - 1)} e^{-1/9 \frac{(-4 + \operatorname{arctanh}(x^{-1}))^2}{-1 + \operatorname{arctanh}(x^{-1})}} dx$$

Moment Generating Function

$$\frac{1}{\sqrt{\pi}} \int_1^{\frac{e^2+1}{e^2-1}} \frac{\sqrt{(-1 + \operatorname{arctanh}(x^{-1}))^{-3}}}{x^2 - 1} e^{-1/9 \frac{-9tx \operatorname{arctanh}(x^{-1}) + (\operatorname{arctanh}(x^{-1}))^2 + 9tx - 8 \operatorname{arctanh}(x^{-1}) + 16}{-1 + \operatorname{arctanh}(x^{-1})}} dx$$

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(-1 + \operatorname{arcsinh}(x^{-1}))^{-1}}}{\sqrt{\pi} \sqrt{x^2 + 1}} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(x^{-1}))^2}{-1 + \operatorname{arcsinh}(x^{-1})}} \left| \frac{1}{x(-1 + \operatorname{arcsinh}(x^{-1}))} \right|$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(-1 + \operatorname{arcsinh}(t^{-1}))^{-1}}}{\sqrt{t^2 + 1}} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(t^{-1}))^2}{-1 + \operatorname{arcsinh}(t^{-1})}} \left| \frac{1}{t(-1 + \operatorname{arcsinh}(t^{-1}))} \right| dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - \int_0^x \frac{\sqrt{(-1 + \operatorname{arcsinh}(t^{-1}))^{-1}}}{\sqrt{t^2 + 1}} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(t^{-1}))^2}{-1 + \operatorname{arcsinh}(t^{-1})}} \left| \frac{1}{t(-1 + \operatorname{arcsinh}(t^{-1}))} \right| dt \right)$$

Hazard Function

$$h(x) = \frac{\sqrt{(-1 + \operatorname{arcsinh}(x^{-1}))^{-1}}}{\sqrt{x^2 + 1}} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(x^{-1}))^2}{-1 + \operatorname{arcsinh}(x^{-1})}} \left| \frac{1}{x(-1 + \operatorname{arcsinh}(x^{-1}))} \right| \left(\sqrt{\pi} - \int_0^x \frac{\sqrt{(-1 + \operatorname{arcsinh}(t^{-1}))^{-1}}}{\sqrt{t^2 + 1}} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(t^{-1}))^2}{-1 + \operatorname{arcsinh}(t^{-1})}} \left| \frac{1}{t(-1 + \operatorname{arcsinh}(t^{-1}))} \right| dt \right)$$

Mean

$$mu = \frac{1}{\sqrt{\pi}} \int_0^{2 \frac{e}{e^2 - 1}} \frac{\sqrt{(-1 + \operatorname{arcsinh}(x^{-1}))^{-1}}}{\sqrt{x^2 + 1} |-1 + \operatorname{arcsinh}(x^{-1})|} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(x^{-1}))^2}{-1 + \operatorname{arcsinh}(x^{-1})}} dx$$

Variance

$$sigma^2 = \frac{1}{\pi^{3/2}} \left(- \left(\int_0^{2 \frac{e}{e^2 - 1}} \frac{\sqrt{(-1 + \operatorname{arcsinh}(x^{-1}))^{-1}}}{\sqrt{x^2 + 1} |-1 + \operatorname{arcsinh}(x^{-1})|} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(x^{-1}))^2}{-1 + \operatorname{arcsinh}(x^{-1})}} dx \right)^2 \sqrt{\pi} + \int_0^{2 \frac{e}{e^2 - 1}} \frac{\sqrt{(-1 + \operatorname{arcsinh}(x^{-1}))^{-1}}}{\sqrt{x^2 + 1}} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(x^{-1}))^2}{-1 + \operatorname{arcsinh}(x^{-1})}} \left| \frac{1}{x(-1 + \operatorname{arcsinh}(x^{-1}))} \right| dx \right)$$

Moment Function

$$m(x) = \int_0^{2(e - e^{-1})^{-1}} \frac{x^r \sqrt{(-1 + \operatorname{arcsinh}(x^{-1}))^{-1}}}{\sqrt{\pi} \sqrt{x^2 + 1}} e^{-1/9 \frac{(-4 + \operatorname{arcsinh}(x^{-1}))^2}{-1 + \operatorname{arcsinh}(x^{-1})}} \left| \frac{1}{x(-1 + \operatorname{arcsinh}(x^{-1}))} \right| dx$$

Moment Generating Function

$$\frac{1}{\sqrt{\pi}} \int_0^{2 \frac{e}{e^2 - 1}} \frac{\sqrt{(-1 + \operatorname{arcsinh}(x^{-1}))^{-1}}}{x |-1 + \operatorname{arcsinh}(x^{-1})| \sqrt{x^2 + 1}} e^{-1/9 \frac{-9tx \operatorname{arcsinh}(x^{-1}) + (\operatorname{arcsinh}(x^{-1}))^2 + 9tx - 8 \operatorname{arcsinh}(x^{-1}) + 16}{-1 + \operatorname{arcsinh}(x^{-1})}} dx$$

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(-1 + \sinh(x^{-1}))^{-1}} \cosh(x^{-1})}{\sqrt{\pi} x^2 |-1 + \sinh(x^{-1})|} e^{-1/9 \frac{(-4 + \sinh(x^{-1}))^2}{-1 + \sinh(x^{-1})}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(-1 + \sinh(t^{-1}))^{-1}} \cosh(t^{-1})}{t^2 |-1 + \sinh(t^{-1})|} e^{-1/9 \frac{(-4 + \sinh(t^{-1}))^2}{-1 + \sinh(t^{-1})}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -\frac{1}{\sqrt{\pi}} \left(-\sqrt{\pi} + \int_0^x \frac{\sqrt{(-1 + \sinh(t^{-1}))^{-1}} \cosh(t^{-1})}{t^2 |-1 + \sinh(t^{-1})|} e^{-1/9 \frac{(-4 + \sinh(t^{-1}))^2}{-1 + \sinh(t^{-1})}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{(-1 + \sinh(x^{-1}))^{-1}} \cosh(x^{-1})}{x^2 |-1 + \sinh(x^{-1})|} e^{-1/9 \frac{(-4 + \sinh(x^{-1}))^2}{-1 + \sinh(x^{-1})}} \left(-\sqrt{\pi} + \int_0^x \frac{\sqrt{(-1 + \sinh(t^{-1}))^{-1}} \cosh(t^{-1})}{t^2 |-1 + \sinh(t^{-1})|} e^{-1/9 \frac{(-4 + \sinh(t^{-1}))^2}{-1 + \sinh(t^{-1})}} dt \right)$$

Mean

$$mu = \frac{1}{\sqrt{\pi}} \int_0^{(\ln(1+\sqrt{2}))^{-1}} \frac{\cosh(x^{-1})}{(-1 + \sinh(x^{-1}))^{3/2} x} e^{-1/9 \frac{(\cosh(x^{-1}))^2 - 8 \sinh(x^{-1}) + 15}{-1 + \sinh(x^{-1})}} dx$$

Variance

$$sigma^2 = \frac{1}{\pi^{3/2}} \left(- \left(\int_0^{(\ln(1+\sqrt{2}))^{-1}} \frac{\cosh(x^{-1})}{(-1 + \sinh(x^{-1}))^{3/2} x} e^{-1/9 \frac{(\cosh(x^{-1}))^2 - 8 \sinh(x^{-1}) + 15}{-1 + \sinh(x^{-1})}} dx \right)^2 \sqrt{\pi} \right)$$

Moment Function

$$m(x) = \int_0^{(\ln(1+\sqrt{2}))^{-1}} \frac{x^r \sqrt{(-1 + \sinh(x^{-1}))^{-1}} \cosh(x^{-1})}{\sqrt{\pi} x^2 |-1 + \sinh(x^{-1})|} e^{-1/9 \frac{(-4 + \sinh(x^{-1}))^2}{-1 + \sinh(x^{-1})}} dx$$

Moment Generating Function

$$\frac{1}{\sqrt{\pi}} \int_0^{(\ln(1+\sqrt{2}))^{-1}} \frac{\cosh(x^{-1})}{(-1 + \sinh(x^{-1}))^{3/2} x^2} e^{\frac{1}{9} \frac{9tx \sinh(x^{-1}) - (\cosh(x^{-1}))^2 - 9tx + 8 \sinh(x^{-1}) - 15}{-1 + \sinh(x^{-1})}} dx$$

1

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(\operatorname{arccsch}((x-1)^{-1}))^{-3}}}{\sqrt{\pi} \sqrt{x^2 - 2x + 2}} e^{-1/9 \frac{(\operatorname{arccsch}((x-1)^{-1}) - 3)^2}{\operatorname{arccsch}((x-1)^{-1})}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_1^x \frac{\sqrt{(\operatorname{arccsch}((t-1)^{-1}))^{-3}}}{\sqrt{t^2 - 2t + 2}} e^{-1/9 \frac{(\operatorname{arccsch}((t-1)^{-1}) - 3)^2}{\operatorname{arccsch}((t-1)^{-1})}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = -\frac{1}{\sqrt{\pi}} \left(-\sqrt{\pi} + \int_1^x \frac{\sqrt{(\operatorname{arccsch}((t-1)^{-1}))^{-3}}}{\sqrt{t^2 - 2t + 2}} e^{-1/9 \frac{(\operatorname{arccsch}((t-1)^{-1}) - 3)^2}{\operatorname{arccsch}((t-1)^{-1})}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{(\operatorname{arccsch}((x-1)^{-1}))^{-3}}}{\sqrt{x^2 - 2x + 2}} e^{-1/9 \frac{(\operatorname{arccsch}((x-1)^{-1}) - 3)^2}{\operatorname{arccsch}((x-1)^{-1})}} \left(-\sqrt{\pi} + \int_1^x \frac{\sqrt{(\operatorname{arccsch}((t-1)^{-1}))^{-3}}}{\sqrt{t^2 - 2t + 2}} dt \right)$$

Mean

$$\mu = \infty$$

Variance

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

Moment Function

$$m(x) = \infty$$

Moment Generating Function

$$\int_1^\infty \frac{1}{\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^{3/2} \sqrt{x^2-2x+2}\sqrt{\pi}} e^{-1/9 \frac{-9tx\operatorname{arccsch}\left((x-1)^{-1}\right)+\left(\operatorname{arccsch}\left((x-1)^{-1}\right)\right)^2-6\operatorname{arccsch}\left((x-1)^{-1}\right)}{\operatorname{arccsch}\left((x-1)^{-1}\right)}} dx$$

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

Probability Distribution Function

$$f(x) = -\frac{\sqrt{(\operatorname{arctanh}(x))^3}}{\sqrt{\pi}(\operatorname{arctanh}(x))^2(x^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)}}$$

Cumulative Distribution Function

$$F(x) = -\frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(\operatorname{arctanh}(t))^3}}{(\operatorname{arctanh}(t))^2(t^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(t))^2}{\operatorname{arctanh}(t)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} + \int_0^x \frac{\sqrt{(\operatorname{arctanh}(t))^3}}{(\operatorname{arctanh}(t))^2(t^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(t))^2}{\operatorname{arctanh}(t)}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{(\operatorname{arctanh}(x))^3}}{(\operatorname{arctanh}(x))^2(x^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)}} \left(\sqrt{\pi} + \int_0^x \frac{\sqrt{(\operatorname{arctanh}(t))^3}}{(\operatorname{arctanh}(t))^2(t^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(t))^2}{\operatorname{arctanh}(t)}} dt \right)$$

Mean

$$\mu = -\frac{1}{\sqrt{\pi}} \int_0^1 \frac{x}{\sqrt{\operatorname{arctanh}(x)}(x^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)}} dx$$

Variance

$$\sigma^2 = -\frac{1}{\pi^{3/2}} \left(\left(\int_0^1 \frac{x}{\sqrt{\operatorname{arctanh}(x)}(x^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)}} dx \right)^2 \sqrt{\pi} + \int_0^1 \frac{x^2}{\sqrt{\operatorname{arctanh}(x)}} dx \right)$$

Moment Function

$$m(x) = \int_0^1 -\frac{x^r \sqrt{(\operatorname{arctanh}(x))^3}}{\sqrt{\pi} (\operatorname{arctanh}(x))^2 (x^2-1)} e^{-1/9 \frac{(-1+3\operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)}} dx$$

Moment Generating Function

$$-\frac{1}{\sqrt{\pi}} \int_0^1 \frac{1}{\sqrt{\operatorname{arctanh}(x)}(x^2-1)} e^{-1/9 \frac{-9tx\operatorname{arctanh}(x)+9(\operatorname{arctanh}(x))^2-6\operatorname{arctanh}(x)+1}{\operatorname{arctanh}(x)}} dx$$

1

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

Probability Distribution Function

$$f(x) = \frac{\sqrt{(\operatorname{arccsch}(x))^3}}{\sqrt{\pi} \sqrt{x^2+1} (\operatorname{arccsch}(x))^2 |x|} e^{-1/9 \frac{(-1+3\operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)}}$$

Cumulative Distribution Function

$$F(x) = \frac{1}{\sqrt{\pi}} \int_0^x \frac{\sqrt{(\operatorname{arccsch}(t))^3}}{\sqrt{t^2+1} (\operatorname{arccsch}(t))^2 |t|} e^{-1/9 \frac{(-1+3\operatorname{arccsch}(t))^2}{\operatorname{arccsch}(t)}} dt$$

Inverse Cumulative Distribution Function

$$F^{-1} =$$

Survivor Function

$$S(x) = \frac{1}{\sqrt{\pi}} \left(\sqrt{\pi} - \int_0^x \frac{\sqrt{(\operatorname{arccsch}(t))^3}}{\sqrt{t^2+1} (\operatorname{arccsch}(t))^2 |t|} e^{-1/9 \frac{(-1+3\operatorname{arccsch}(t))^2}{\operatorname{arccsch}(t)}} dt \right)$$

Hazard Function

$$h(x) = -\frac{\sqrt{(\operatorname{arccsch}(x))^3}}{\sqrt{x^2+1}(\operatorname{arccsch}(x))^2|x|}e^{-1/9\frac{(-1+3\operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)}}\left(-\sqrt{\pi}+\int_0^x\frac{\sqrt{(\operatorname{arccsch}(t))^3}}{\sqrt{t^2+1}(\operatorname{arccsch}(t))^2|t|}e^{-1/9\frac{(-1+3\operatorname{arccsch}(t))^2}{\operatorname{arccsch}(t)}}dt\right)$$

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

Probability Distribution Function

$$f(x) = \frac{\operatorname{signum}(x)\sqrt{(\sinh(x))^{-1}}\cosh(x)}{\sinh(x)\sqrt{\pi}}e^{-1/9\frac{(\sinh(x)-3)^2}{\sinh(x)}}$$

Cumulative Distribution Function

$$F(x) = \text{undefined}$$

Inverse Cumulative Distribution Function

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

Survivor Function

$$S(x) = \text{undefined}$$

Hazard Function

$$h(x) = \frac{\operatorname{signum}(x)\sqrt{(\sinh(x))^{-1}}\cosh(x)\text{undefined}}{\sinh(x)}e^{-1/9\frac{(\sinh(x)-3)^2}{\sinh(x)}}$$

Mean

$$\mu = \int_0^\infty \frac{\cosh(x)x}{(\sinh(x))^{3/2}\sqrt{\pi}}e^{1/9\frac{-(\cosh(x))^2+6\sinh(x)-8}{\sinh(x)}}dx$$

Variance

$$\sigma^2 = \int_0^\infty \frac{\cosh(x)x^2}{(\sinh(x))^{3/2}\sqrt{\pi}}e^{1/9\frac{-(\cosh(x))^2+6\sinh(x)-8}{\sinh(x)}}dx - \left(\int_0^\infty \frac{\cosh(x)x}{(\sinh(x))^{3/2}\sqrt{\pi}}e^{1/9\frac{-(\cosh(x))^2+6\sinh(x)-8}{\sinh(x)}}dx\right)^2$$

Moment Function

$$m(x) = \int_0^\infty \frac{x^r \operatorname{signum}(x)\sqrt{(\sinh(x))^{-1}}\cosh(x)}{\sinh(x)\sqrt{\pi}}e^{-1/9\frac{(\sinh(x)-3)^2}{\sinh(x)}}dx$$

Moment Generating Function

$$\int_0^\infty \frac{\cosh(x)}{(\sinh(x))^{3/2} \sqrt{\pi}} e^{1/9 \frac{9tx \sinh(x) - (\cosh(x))^2 + 6 \sinh(x) - 8}{\sinh(x)}} dx_1$$