$$filename := \text{"C:/LatexOutput/Gamma.tex"}$$

$$4\,x\,e^{-2\,x}$$

"i is", 1,
" ---
----------"

$$g := t \to t^2$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to 2\,e^{-2\sqrt{y\sim}}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, x^2, \text{"base"}, 4\,x\,e^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, 2\,e^{-2\sqrt{x}}$$

$$\text{"F(x)"}, 1 - 2\sqrt{x}\,e^{-2\sqrt{x}} - e^{-2\sqrt{x}}$$

$$\text{"IDF(x)"}, \left[\left[s \to \frac{1}{4}\left(\mathrm{LambertW}\left((s-1)\,e^{-1}\right)+1\right)^2\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

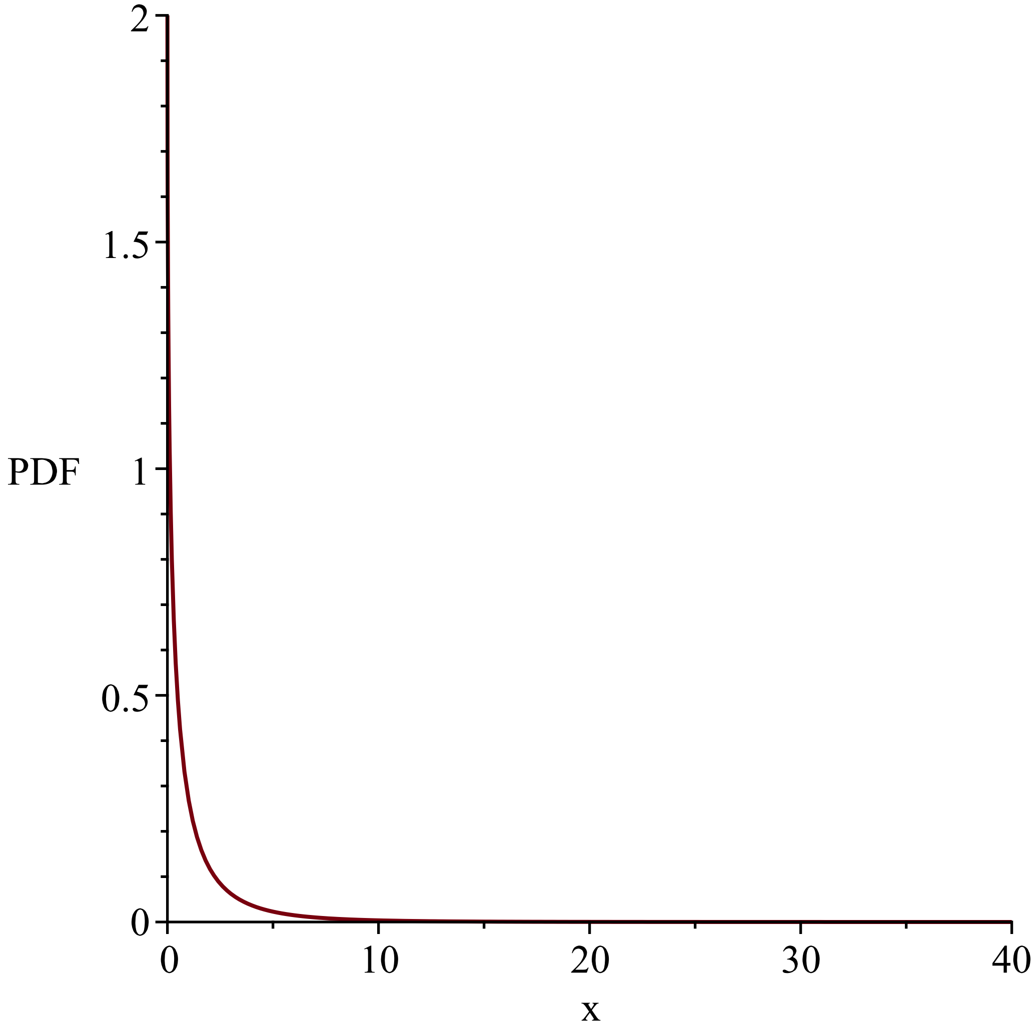
$$\text{"S(x)"}, e^{-2\sqrt{x}}\left(2\sqrt{x}+1\right)$$

$$\text{"h(x)"}, \frac{2}{2\sqrt{x}+1}$$

$$\text{"mean and variance"}, \frac{3}{2}, \frac{21}{4}$$

$$\text{"MF"}, \frac{2\,\Gamma(r\sim)\,\Gamma\left(r\sim+\frac{1}{2}\right)r\sim^2}{\sqrt{\pi}} + \frac{\Gamma(r\sim)\,\Gamma\left(r\sim+\frac{1}{2}\right)r\sim}{\sqrt{\pi}}$$

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



2\,{{\rm e}^{-2\,\sqrt {x}}}

"i is", 2,

" ---
----------"

$$g := t \to \sqrt{t}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to 8\, y\sim^3\, \mathrm{e}^{-2\, y\sim^2}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\sqrt{x}$, "base", $4\, x\, \mathrm{e}^{-2\, x}$, "GammaRV(2.2)"

"f(x)", $8\, x^3\, \mathrm{e}^{-2\, x^2}$

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

ERROR(IDF): Could not find the appropriate inverse

ERROR(IDF): Could not find the appropriate inverse

"IDF(x)", [[ ], [0, 1], ["Continuous", "IDF"]]

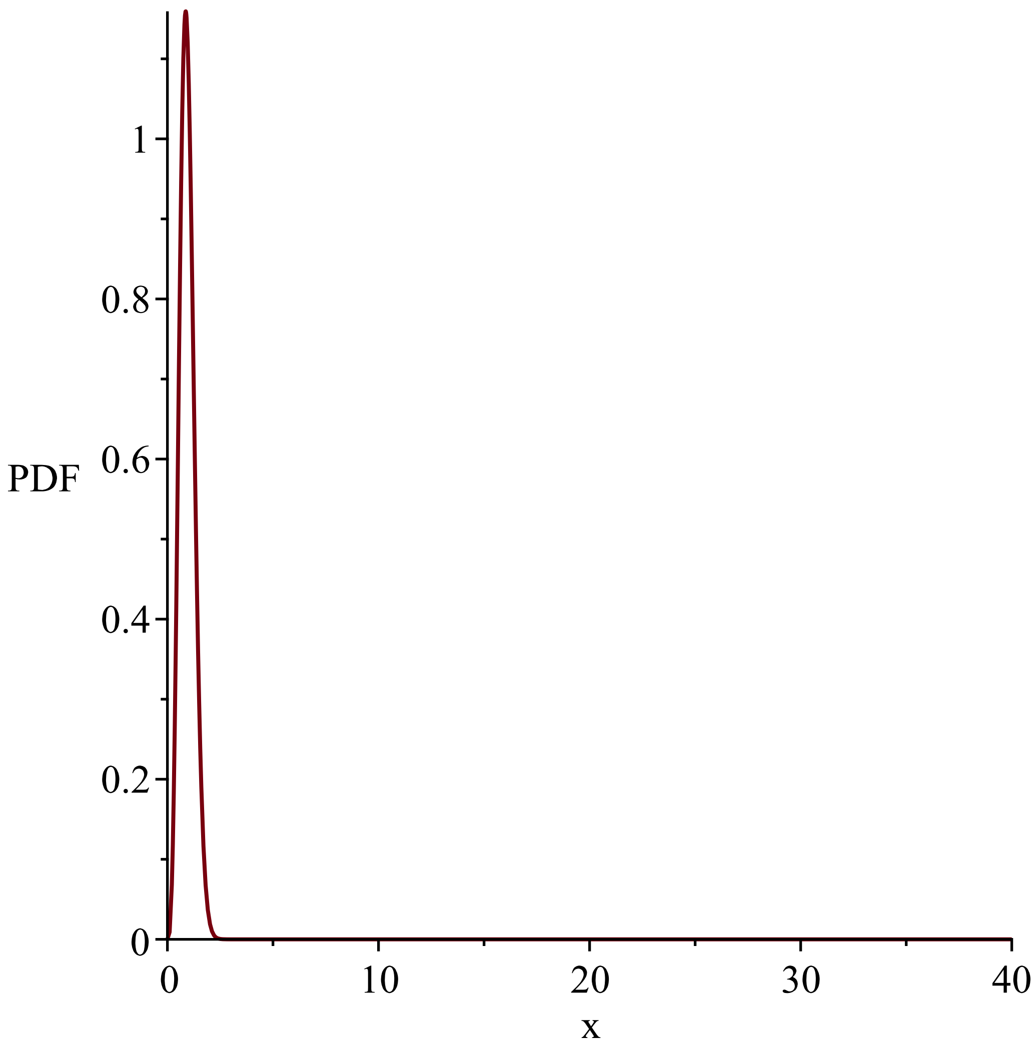
"S(x)", $\mathrm{e}^{-2\, x^2}\, (2\, x^2 + 1)$

$$"h(x)", \frac{8 x^3}{2 x^2 + 1}$$

$$"mean and variance", \frac{3}{8} \sqrt{2} \sqrt{\pi}, 1 - \frac{9}{32} \pi$$

$$"MF", 2^{-\frac{1}{2} r\sim} \Gamma\left(2 + \frac{1}{2} r\sim\right)$$

$$"MGF", \frac{1}{8} t^2 + \frac{1}{32} t^3 \sqrt{\pi}\, e^{\frac{1}{8} t^2} \sqrt{2}\, \mathrm{erf}\left(\frac{1}{4} t \sqrt{2}\right) + \frac{3}{8} t \sqrt{\pi}\, e^{\frac{1}{8} t^2} \sqrt{2}\, \mathrm{erf}\left(\frac{1}{4} t \sqrt{2}\right) + 1 + \frac{1}{32} t^3 \sqrt{\pi}\, e^{\frac{1}{8} t^2} \sqrt{2} + \frac{3}{8} t \sqrt{\pi}\, e^{\frac{1}{8} t^2} \sqrt{2}$$




```
8\,{x}^{3}{{\rm e}^{-2\,{x}^{2}}}
```

"i is", 3,

" --"

$$g := t \rightarrow \frac{1}{t}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{4\,\mathrm{e}^{-\frac{2}{y\sim}}}{y\sim^3}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \frac{1}{x}, \text{"base"}, 4\,x\,\mathrm{e}^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, \frac{4\,\mathrm{e}^{-\frac{2}{x}}}{x^3}$$

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

$$\text{"IDF(x)"}, \left[\left[s \rightarrow -\frac{2}{\mathrm{LambertW}\left(-s\,\mathrm{e}^{-1}\right)+1}\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

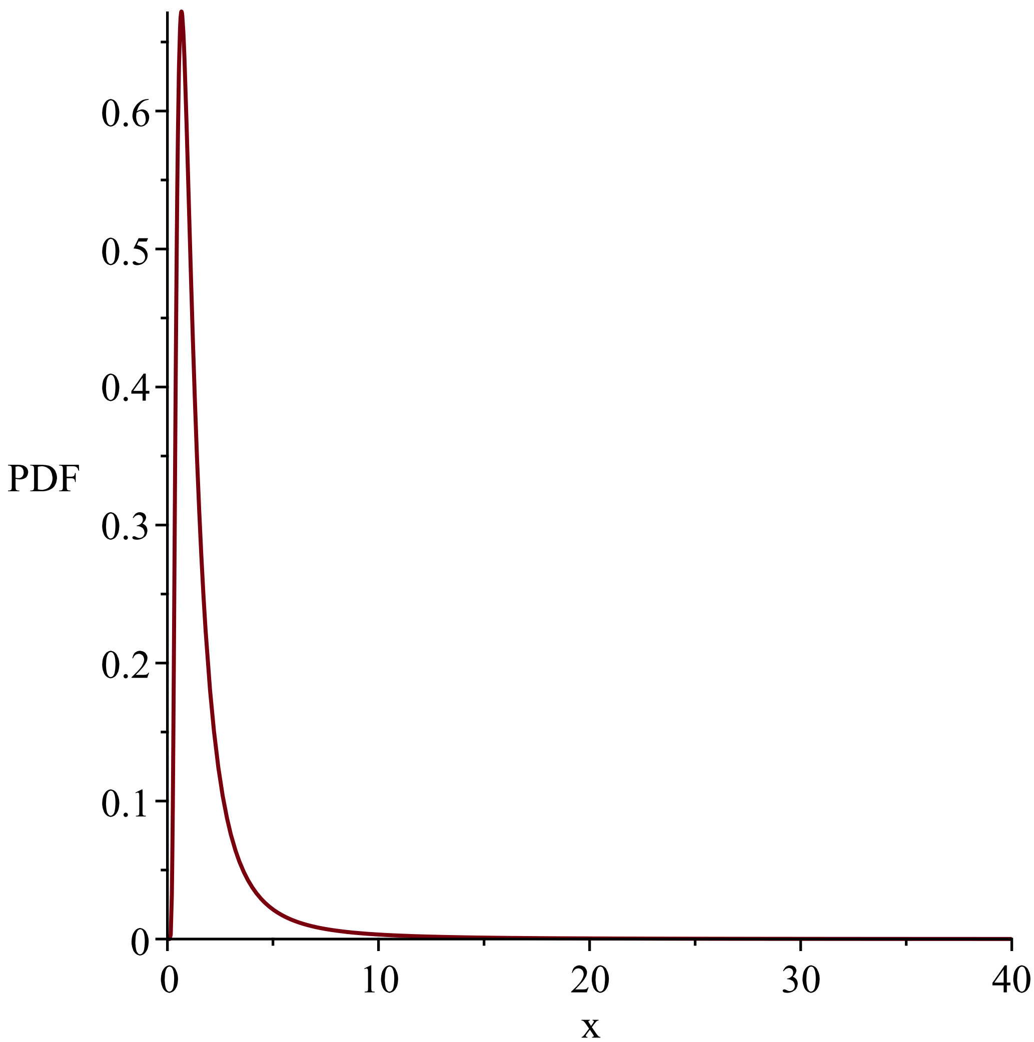
$$\text{"S(x)"}, -\frac{\mathrm{e}^{-\frac{2}{x}}\,x + 2\,\mathrm{e}^{-\frac{2}{x}} - x}{x}$$

$$\text{"h(x)"}, -\frac{4\,\mathrm{e}^{-\frac{2}{x}}}{x^2\left(\mathrm{e}^{-\frac{2}{x}}\,x + 2\,\mathrm{e}^{-\frac{2}{x}} - x\right)}$$

$$\text{"mean and variance"}, 2, \infty$$

$$\text{"MF"}, 2^{r\sim}\,\Gamma(2-r\sim)$$

$$\text{"MGF"}, -4\,t\,\mathrm{BesselK}\left(0, 2\sqrt{-t}\,\sqrt{2}\right) + 2\sqrt{-t}\,\sqrt{2}\,\mathrm{BesselK}\left(1, 2\sqrt{-t}\,\sqrt{2}\right)$$



4\,{\frac {1}{{x}^{3}}{{\rm e}^{-2\,{x}^{-1}}}}

"i is", 4,

" --"

$$g := t \rightarrow \arctan(t)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow 4 \tan(y\sim)\, \mathrm{e}^{-2\tan(y\sim)} \left(1 + \tan(y\sim)^2\right) \right], \left[0, \frac{1}{2}\pi\right], [\text{"Continuous"}, \text{"PDF"}] \right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \arctan(x), \text{"base"}, 4\, x\, \mathrm{e}^{-2x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, 4 \tan(x)\, \mathrm{e}^{-2\tan(x)} \left(1 + \tan(x)^2\right)$$

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

$$"IDF(x)", \left[\left[s \rightarrow -\arctan\left(\frac{1}{2}\,\mathrm{LambertW}\left((s-1)\,e^{-1}\right)+\frac{1}{2}\right)\right], [0, 1], ["Continuous", "IDF"]\right]$$

$$"S(x)", \begin{cases} e^{-2\tan(x)}\,(2\tan(x)+1) & x \le \frac{1}{2}\pi \\ \infty & \frac{1}{2}\pi < x \end{cases}$$

$$"h(x)", \begin{cases} \dfrac{4\sin(x)}{\cos(x)^2\,(2\sin(x)+\cos(x))} & x \le \frac{1}{2}\pi \\ 0 & \frac{1}{2}\pi < x \end{cases}$$

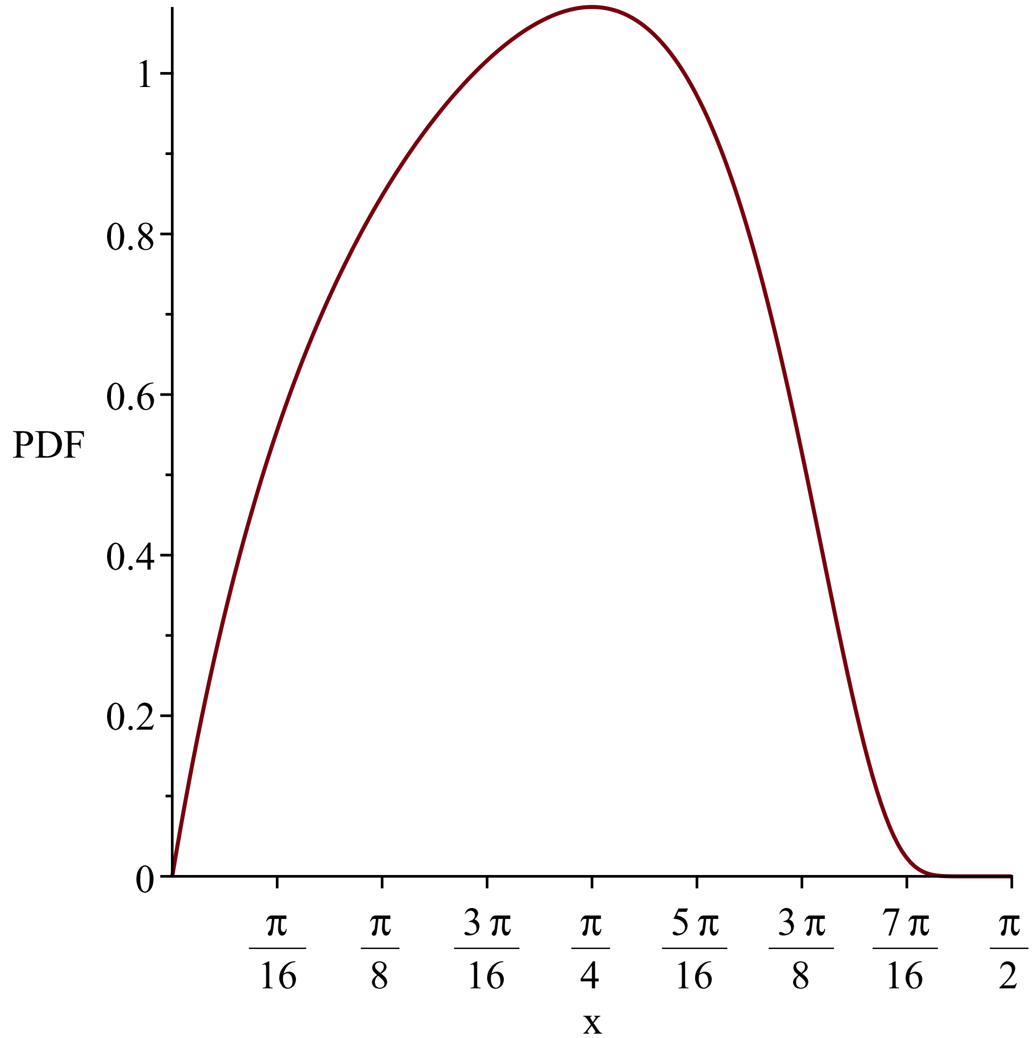
$$"mean and variance", 4\left(\int_0^{\frac{1}{2}\pi} x\tan(x)\,e^{-2\tan(x)}\left(1+\tan(x)^2\right)\mathrm{d}x\right), 4\left(\int_0^{\frac{1}{2}\pi} x^2\tan(x)\,e^{-2\tan(x)}\left(1+\tan(x)^2\right)\mathrm{d}x\right) - 16\left(\int_0^{\frac{1}{2}\pi} x\tan(x)\,e^{-2\tan(x)}\left(1+\tan(x)^2\right)\mathrm{d}x\right)^2$$

$$"MF", \int_0^{\frac{1}{2}\pi} 4\,x^{r\sim}\tan(x)\,e^{-2\tan(x)}\left(1+\tan(x)^2\right)\mathrm{d}x$$

$$"MGF", 4\left(\int_0^{\frac{1}{2}\pi} \tan(x)\left(1+\tan(x)^2\right)e^{t\,x-2\tan(x)}\,\mathrm{d}x\right)$$

WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $\frac{1}{2}\pi$

Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $\frac{1}{2}\pi$

Resetting high to RV's maximum support value

```
4\,\tan \left( x \right) {{\rm e}^{-2\,\tan \left( x \right) }}
 \left( 1+ \left( \tan \left( x \right)  \right) ^{2} \right)
```

"i is", 5,

" --"

$$g := t \to e^{t}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{4\ln(y\sim)}{y\sim^{3}}\right], [1, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", e^{x}, "base", $4\,x\,e^{-2\,x}$, "GammaRV(2.2)"

$$\text{"f(x)"}, \frac{4 \ln(x)}{x^3}$$

$$\text{"F(x)"}, -\frac{-x^2 + 2 \ln(x) + 1}{x^2}$$

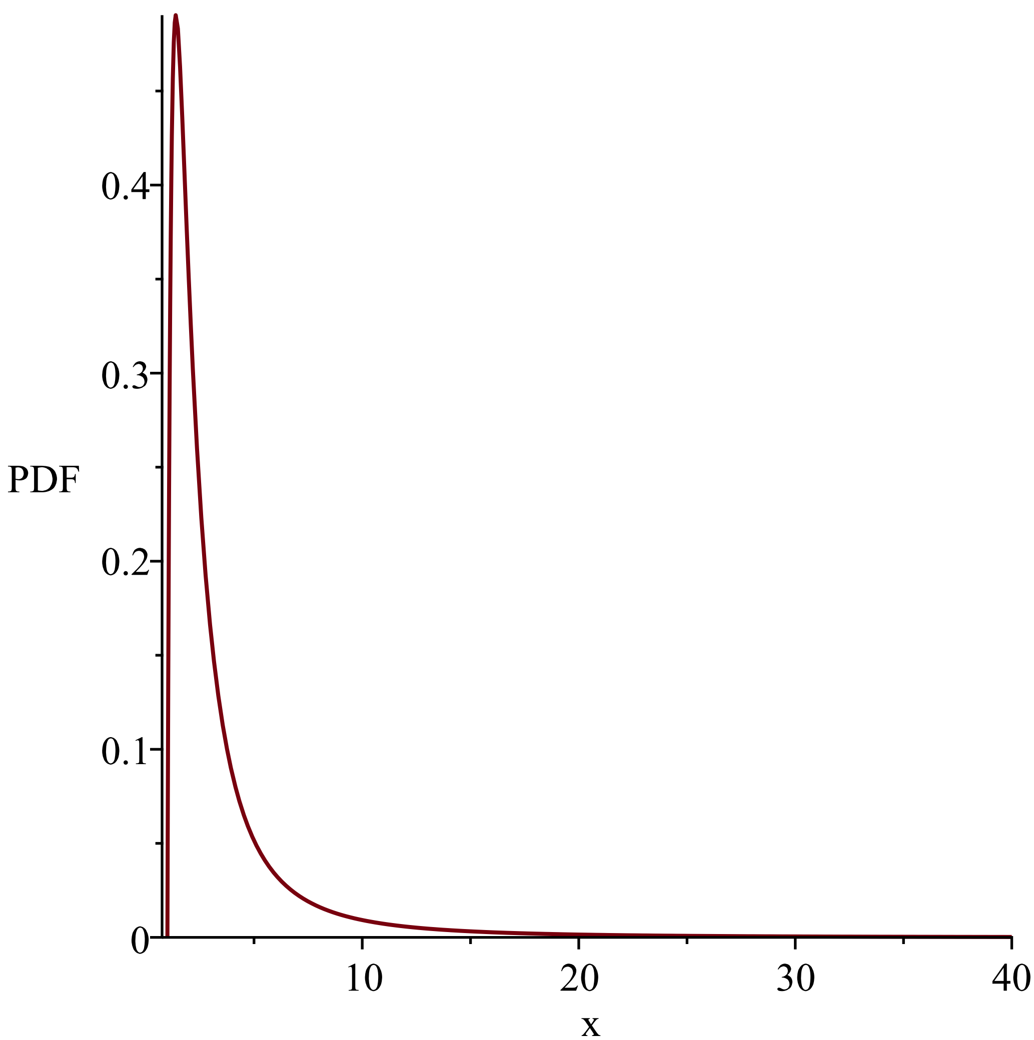
$$\text{"IDF(x)"}, \left[\left[s \rightarrow \frac{1}{\sqrt{\frac{s-1}{\text{LambertW}\left((s-1)\, e^{-1} \right)}}} \right], [0, 1], [\text{"Continuous"}, \text{"IDF"}] \right]$$

$$\text{"S(x)"}, \frac{2 \ln(x) + 1}{x^2}$$

$$\text{"h(x)"}, \frac{4 \ln(x)}{x\, (2 \ln(x) + 1)}$$

"mean and variance", 4, ∞

WARNING(PlotDist): Low value provided by user, 0
is less than minimum support value of random variable
1
Resetting low to RV's minimum support value



WARNING(PlotDist): Low value provided by user, 0 *is less than minimum support value of random variable*

1

Resetting low to RV's minimum support value

```
4\,{\frac {\ln  \left( x \right) }{{x}^{3}}}
```

"i is", 6,

" ---"

$$g := t \to \ln(t)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to 4\,\mathrm{e}^{2\,y\sim - 2\,\mathrm{e}^{y\sim}}\right], [-\infty, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \ln(x), \text{"base"}, 4\,x\,\mathrm{e}^{-2\,x}, \text{"GammaRV(2.2)"}$$

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

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

$$\text{"IDF(x)"}, \left[\left[s \to \mathit{RootOf}\left(\_Z + \ln(2) - \ln\left(1 - \mathrm{e}^{-2\,\mathrm{e}^{\_Z}} - s\right) - 2\,\mathrm{e}^{\_Z}\right)\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

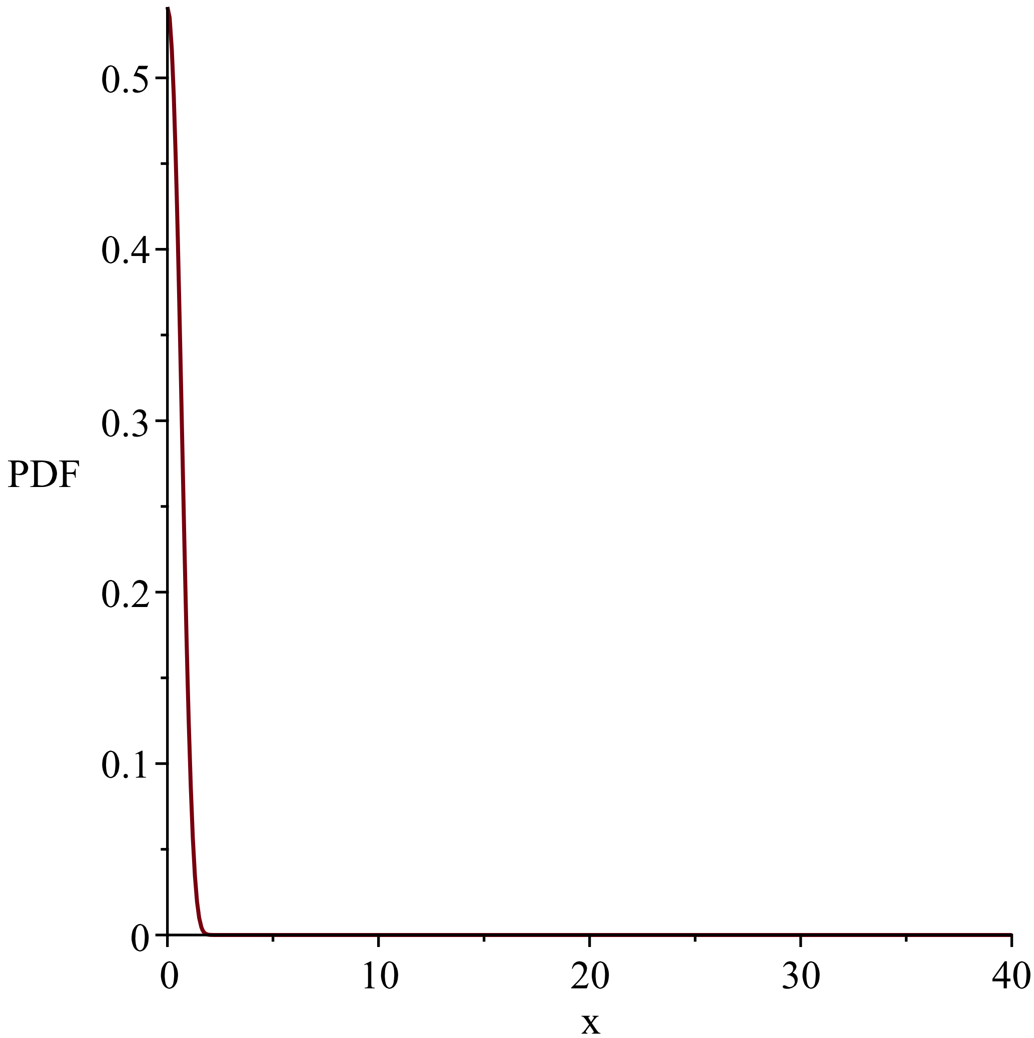
$$\text{"S(x)"}, 2\,\mathrm{e}^{x - 2\,\mathrm{e}^{x}} + \mathrm{e}^{-2\,\mathrm{e}^{x}}$$

$$\text{"h(x)"}, \frac{4\,\mathrm{e}^{2\,x - 2\,\mathrm{e}^{x}}}{2\,\mathrm{e}^{x - 2\,\mathrm{e}^{x}} + \mathrm{e}^{-2\,\mathrm{e}^{x}}}$$

$$\text{"mean and variance"}, \int_{-\infty}^{\infty} 4\,x\,\mathrm{e}^{2\,x - 2\,\mathrm{e}^{x}}\,\mathrm{d}x, \int_{-\infty}^{\infty} 4\,x^{2}\,\mathrm{e}^{2\,x - 2\,\mathrm{e}^{x}}\,\mathrm{d}x - \left(\int_{-\infty}^{\infty} 4\,x\,\mathrm{e}^{2\,x - 2\,\mathrm{e}^{x}}\,\mathrm{d}x\right)^{2}$$

$$\text{"MF"}, \int_{-\infty}^{\infty} 4\,x^{r\sim}\,\mathrm{e}^{2\,x - 2\,\mathrm{e}^{x}}\,\mathrm{d}x$$

$$\text{"MGF"}, \int_{-\infty}^{\infty} 4\,\mathrm{e}^{t\,x + 2\,x - 2\,\mathrm{e}^{x}}\,\mathrm{d}x$$




```
4\,{{\rm e}^{2\,x-2\,{{\rm e}^{x}}}}
```

"i is", 7,

" --"

$$g := t \to \mathrm{e}^{-t}$$

$$l := 0$$

$$u := \infty$$

$$Temp := [[y\sim \to -4 \ln(y\sim)\, y\sim], [0, 1], [\text{"Continuous"}, \text{"PDF"}]]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \mathrm{e}^{-x}, \text{"base"}, 4\, x\, \mathrm{e}^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, -4 \ln(x)\, x$$

$$\text{"F(x)"}, -x^2\, (2 \ln(x) - 1)$$

$$\text{"IDF(x)"}, \left[\left[s \to \sqrt{-\frac{s}{\mathrm{LambertW}(-s\, \mathrm{e}^{-1})}}\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

$$\text{"S(x)"}, 2 \ln(x)\, x^2 - x^2 + 1$$

$$\text{"h(x)"}, -\frac{4\ln(x)\,x}{2\ln(x)\,x^2 - x^2 + 1}$$

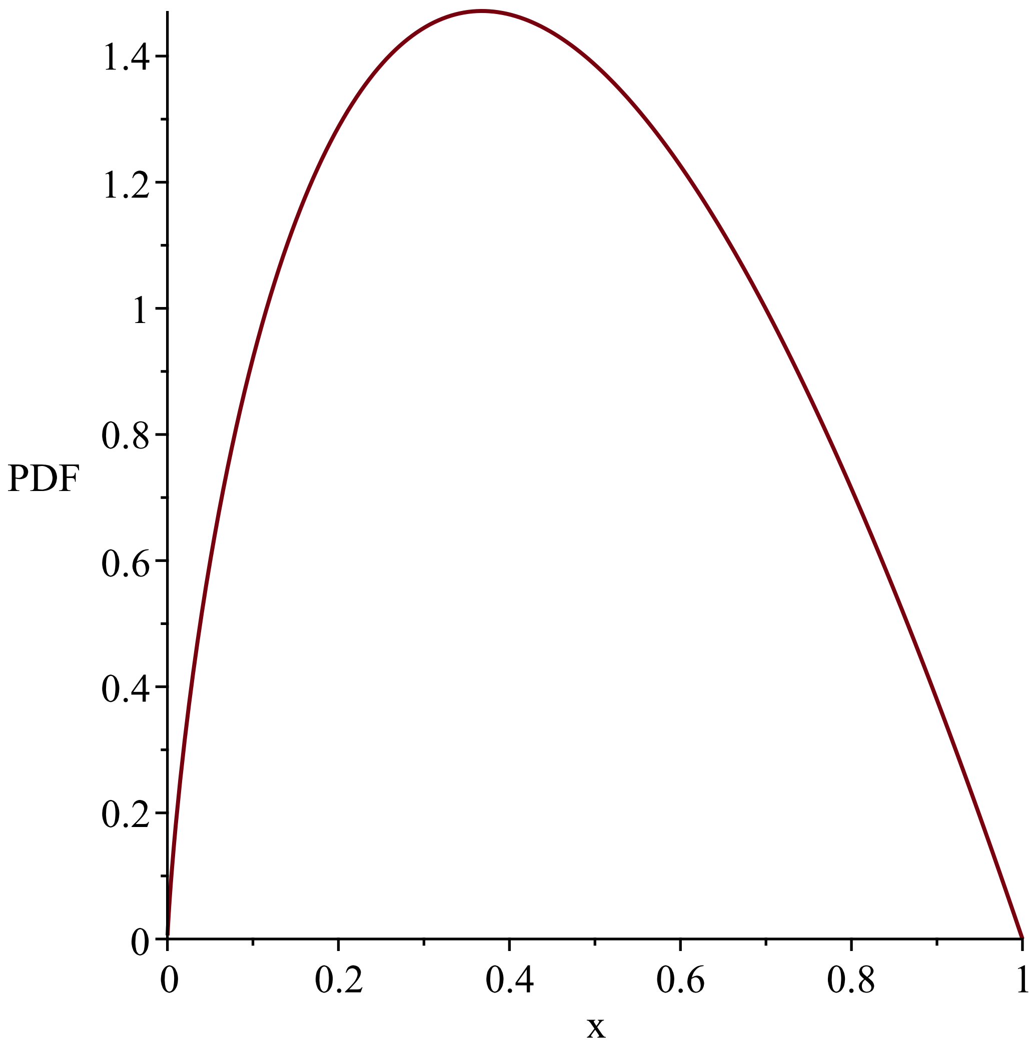
$$\text{"mean and variance"}, \frac{4}{9}, \frac{17}{324}$$

$$\text{"MF"}, \frac{4}{r\sim^2 + 4\,r\sim + 4}$$

$$\text{"MGF"}, \frac{4\left(-1 + \gamma + \ln(-t) + e^t + \mathrm{Ei}(1, -t)\right)}{t^2}$$

WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* 1

Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* 1

Resetting high to RV's maximum support value

```
-4\,\ln  \left( x \right) x
```

"i is", 8,
" ---
----------"

$$g := t \to -\ln(t)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to 4\,\mathrm{e}^{-2\,\mathrm{e}^{-y\sim} - 2\,y\sim}\right], [-\infty, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, -\ln(x), \text{"base"}, 4\,x\,\mathrm{e}^{-2\,x}, \text{"GammaRV(2.2)"}$$

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

$$\text{"F(x)"}, \left(2 + \mathrm{e}^{x}\right)\,\mathrm{e}^{-\left(x\,\mathrm{e}^{x} + 2\right)\,\mathrm{e}^{-x}}$$

$$\text{"IDF(x)"}, \left[\left[s \to RootOf\left(\ln\left(\frac{s}{2 + \mathrm{e}^{\_Z}}\right)\,\mathrm{e}^{\_Z} + \_Z\,\mathrm{e}^{\_Z} + 2\right)\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

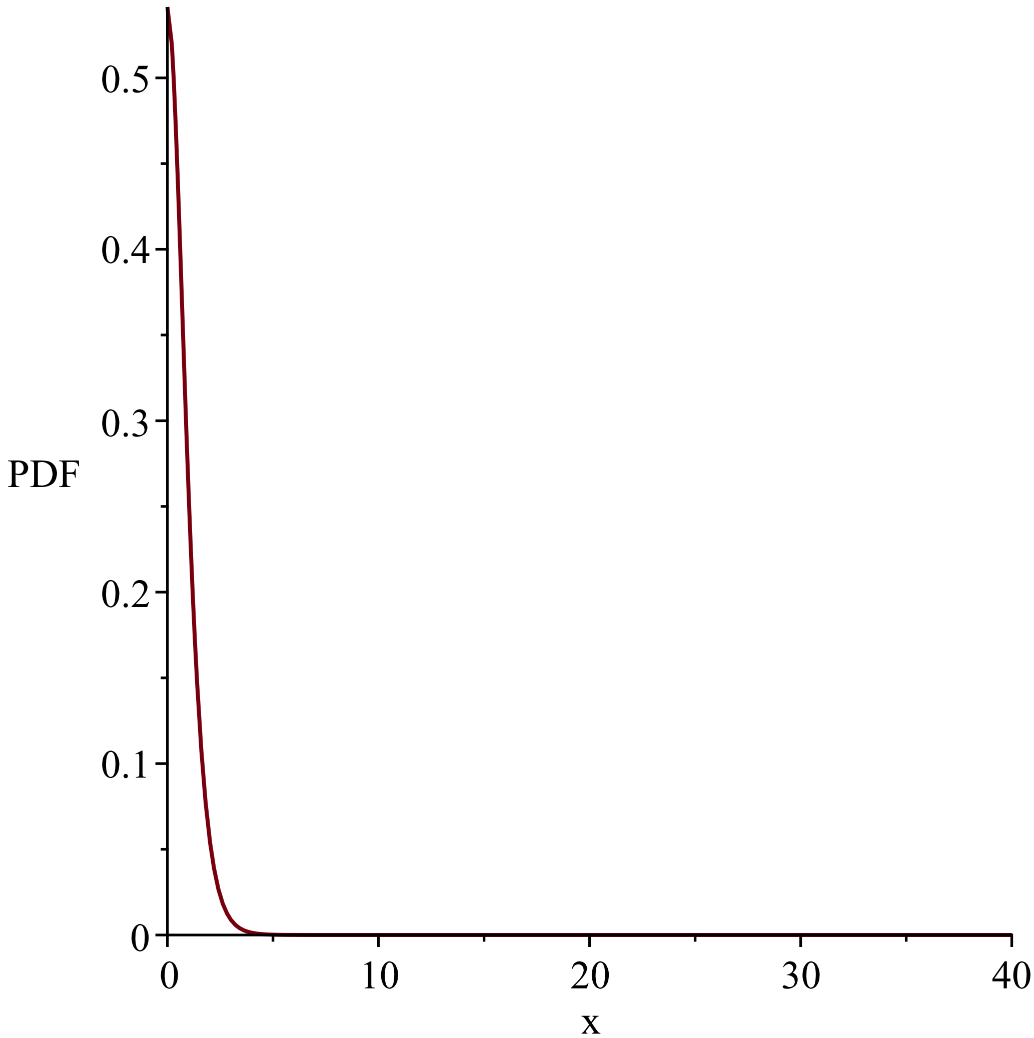
$$\text{"S(x)"}, -\mathrm{e}^{-2\,\mathrm{e}^{-x}} - 2\,\mathrm{e}^{-2\,\mathrm{e}^{-x} - x} + 1$$

$$\text{"h(x)"}, -\frac{4\,\mathrm{e}^{-2\,x - 2\,\mathrm{e}^{-x}}}{\mathrm{e}^{-2\,\mathrm{e}^{-x}} + 2\,\mathrm{e}^{-2\,\mathrm{e}^{-x} - x} - 1}$$

$$\text{"mean and variance"}, \int_{-\infty}^{\infty} 4\,x\,\mathrm{e}^{-2\,x - 2\,\mathrm{e}^{-x}}\,\mathrm{d}x, \int_{-\infty}^{\infty} 4\,x^2\,\mathrm{e}^{-2\,x - 2\,\mathrm{e}^{-x}}\,\mathrm{d}x - \left(\int_{-\infty}^{\infty} 4\,x\,\mathrm{e}^{-2\,x - 2\,\mathrm{e}^{-x}}\,\mathrm{d}x\right)^2$$

$$\text{"MF"}, \int_{-\infty}^{\infty} 4\,x^{r\sim}\,\mathrm{e}^{-2\,x - 2\,\mathrm{e}^{-x}}\,\mathrm{d}x$$

$$\text{"MGF"}, \int_{-\infty}^{\infty} 4\,\mathrm{e}^{t\,x - 2\,x - 2\,\mathrm{e}^{-x}}\,\mathrm{d}x$$




```
4\,{{\rm e}^{-2\,x-2\,{{\rm e}^{-x}}}}
```

"i is", 9,

" --"

$$g := t \rightarrow \ln(t+1)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow 4\left(e^{y\sim}-1\right)e^{-2\,e^{y\sim}+2+y\sim}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\ln(x+1)$, "base", $4\,x\,e^{-2\,x}$, "GammaRV(2.2)"

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

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

"IDF(x)", $\left[\left[s \rightarrow RootOf\left(\_Z+\ln(2)-\ln\left(1+e^{2-2\,e^{\_Z}}-s\right)+2-2\,e^{\_Z}\right)\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$

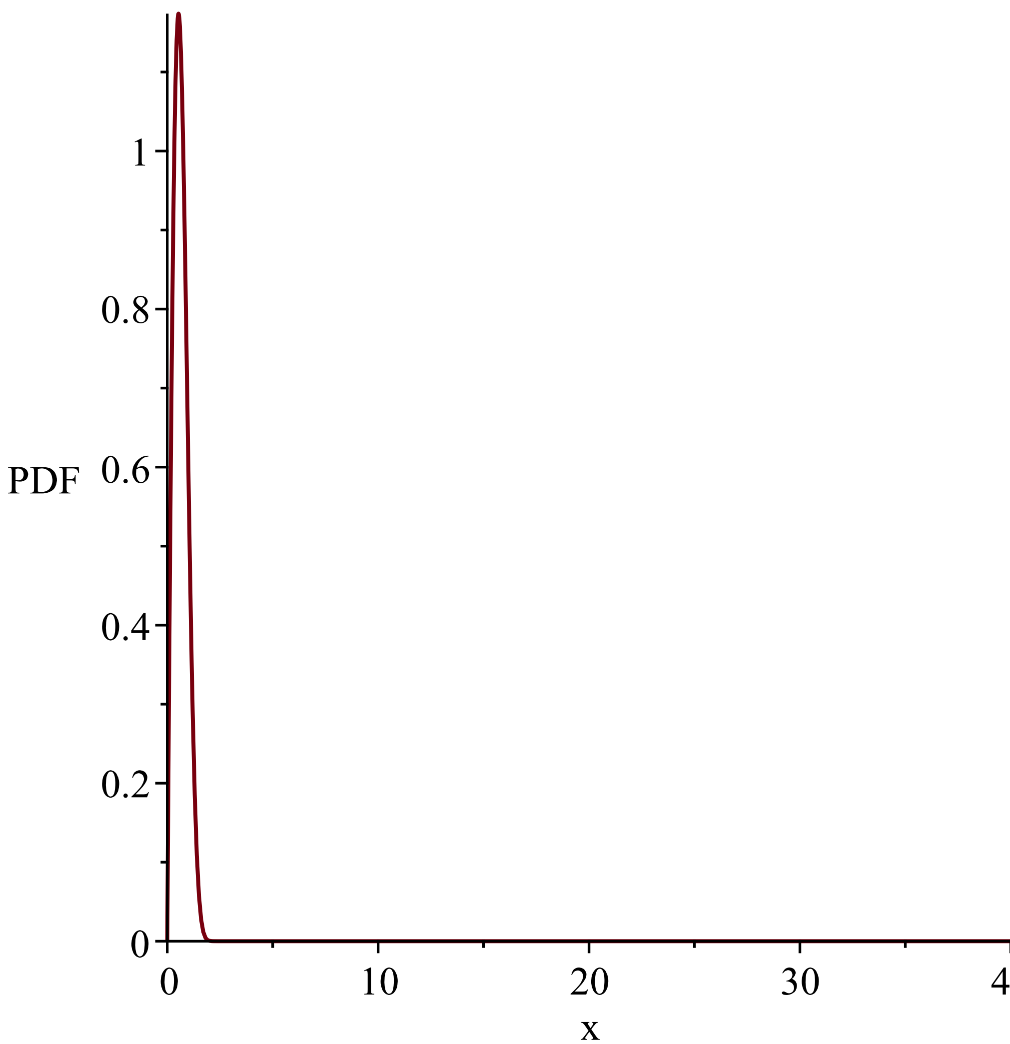
"S(x)", $2\,e^{-2\,e^{x}+2+x}-e^{2-2\,e^{x}}$

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

$$\text{"mean and variance"}, \int_{0}^{\infty} 4 x\left(e^{x}-1\right) e^{-2 e^{x}+2+x} dx, \int_{0}^{\infty} 4 x^{2}\left(e^{x}-1\right) e^{-2 e^{x}+2+x} dx - \left(\int_{0}^{\infty} 4 x\left(e^{x}-1\right) e^{-2 e^{x}+2+x} dx\right)^{2}$$

$$\text{"MF"}, \int_{0}^{\infty} 4 x^{r\sim}\left(e^{x}-1\right) e^{-2 e^{x}+2+x} dx$$

$$\text{"MGF"}, \int_{0}^{\infty} 4\left(e^{x}-1\right) e^{t x-2 e^{x}+2+x} dx$$




```
4\, \left( {{\rm e}^{x}}-1 \right) {{\rm e}^{-2\,{{\rm e}^{x}}
+2+x}}
```

"i is", 10,

" --"

$$g := t \to \frac{1}{\ln(t+2)}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{4\left(e^{\frac{1}{y\sim}}-2\right) e^{-\frac{2\,e^{\frac{1}{y\sim}}\,y\sim-4\,y\sim-1}{y\sim}}}{y\sim^{2}}\right], \left[0, \frac{1}{\ln(2)}\right], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\frac{1}{\ln(x+2)}$, "base", $4\,x\,e^{-2\,x}$, "GammaRV(2.2)"

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

$$\text{"F(x)"}, e^{4-2\,e^{\frac{1}{x}}}\left(2\,e^{\frac{1}{x}}-3\right)$$

$$\text{"IDF(x)"}, \left[\left[s \to -\frac{1}{\ln(2)-\ln(-\mathrm{LambertW}(-s\,e^{-1})+3)}\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

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

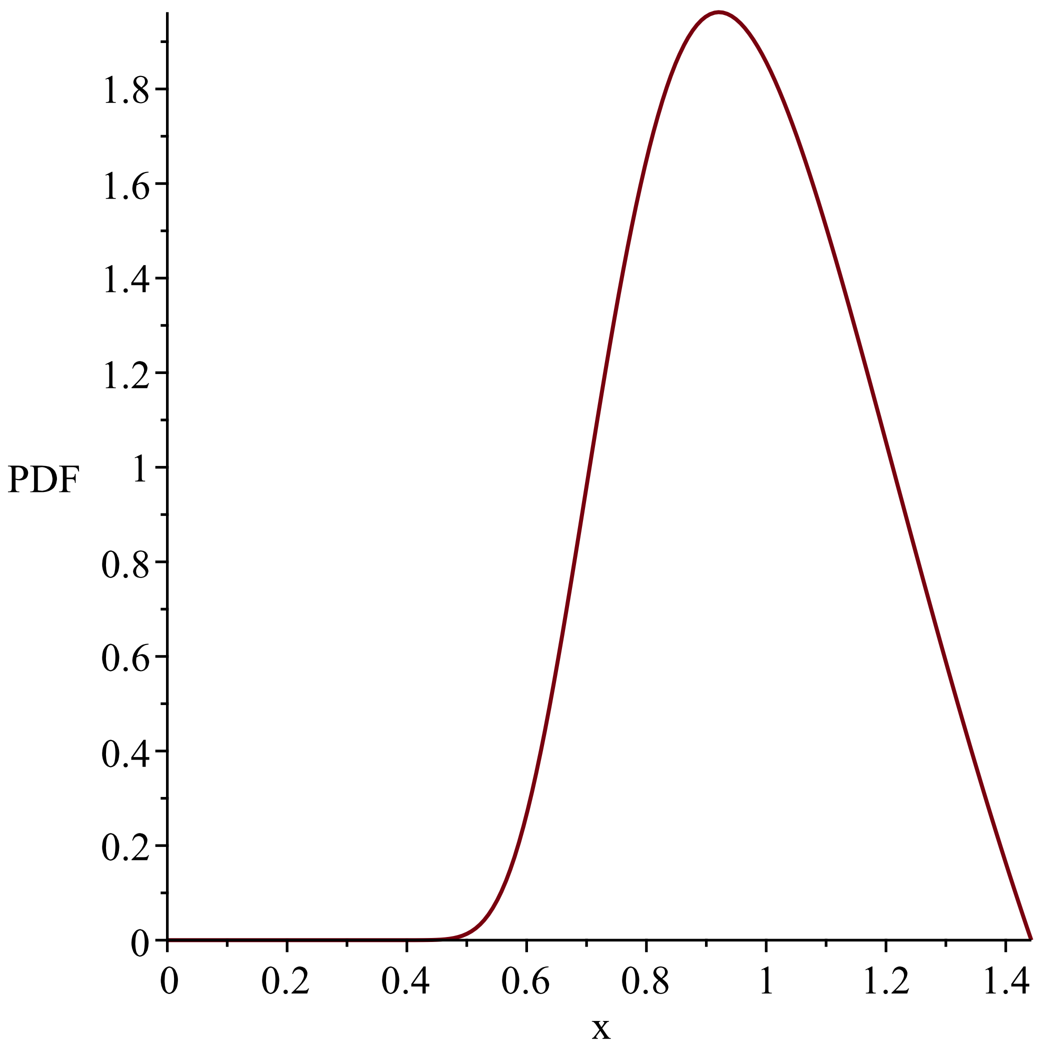
$$\text{"h(x)"}, \frac{4\left(e^{\frac{1}{x}}-2\right) e^{-\frac{2\,e^{\frac{1}{x}}\,x-4\,x-1}{x}}}{x^{2}\left(-2\,e^{-\frac{2\,e^{\frac{1}{x}}\,x-4\,x-1}{x}}+3\,e^{4-2\,e^{\frac{1}{x}}}+1\right)}$$

$$\text{"mean and variance"}, 4\left(\int_{0}^{\frac{1}{\ln(2)}} \frac{\left(e^{\frac{1}{x}}-2\right) e^{-\frac{2\,e^{\frac{1}{x}}\,x-4\,x-1}{x}}}{x}\,dx\right), 4\left(\int_{0}^{\frac{1}{\ln(2)}} \left(e^{\frac{1}{x}}-2\right) e^{-\frac{2\,e^{\frac{1}{x}}\,x-4\,x-1}{x}}\,dx\right)-16\left(\int_{0}^{\frac{1}{\ln(2)}} \frac{\left(e^{\frac{1}{x}}-2\right) e^{-\frac{2\,e^{\frac{1}{x}}\,x-4\,x-1}{x}}}{x}\,dx\right)^{2}$$

$$\text{"MF"}, \int_{0}^{\frac{1}{\ln(2)}} \frac{4\, x^{r\sim} \left(\mathrm{e}^{\frac{1}{x}} - 2\right) \mathrm{e}^{-\frac{2\,\mathrm{e}^{\frac{1}{x}}\, x - 4\,x - 1}{x}}}{x^{2}}\, \mathrm{d}x$$

$$\text{"MGF"}, 4 \left(\int_{0}^{\frac{1}{\ln(2)}} \frac{\left(\mathrm{e}^{\frac{1}{x}} - 2\right) \mathrm{e}^{-\frac{-t\,x^{2} + 2\,\mathrm{e}^{\frac{1}{x}}\, x - 4\,x - 1}{x}}}{x^{2}}\, \mathrm{d}x \right)$$

WARNING(PlotDist): High value provided by user, 40
is greater than maximum support value of the random
variable, $\frac{1}{\ln(2)}$
Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random*

variable, $\frac{1}{\ln(2)}$

Resetting high to RV's maximum support value

```
4\,{\frac {{{\rm e}^{{x}^{-1}}-2}{{x}^{2}}{{\rm e}^{-{\frac
{2\,{
{\rm e}^{{x}^{-1}}}x-4\,x-1}{x}}}}}
```

"i is", 11,

" ---
----------"

$$g := t \rightarrow \tanh(t)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{4\,\operatorname{arctanh}(y\sim)}{(y\sim+1)^2}\right], [0, 1], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\tanh(x)$, "base", $4\,x\,e^{-2\,x}$, "GammaRV(2.2)"

"f(x)", $\frac{4\,\operatorname{arctanh}(x)}{(x+1)^2}$

"F(x)", $-\frac{\ln(1-x)\,x-\ln(x+1)\,x+4\,\operatorname{arctanh}(x)+\ln(1-x)-\ln(x+1)-2\,x}{x+1}$

"IDF(x)", $\left[\left[s \rightarrow -e^{RootOf\left(-\ln\left(-e^{\_Z}+2\right)e^{\_Z}+\_Z\,e^{\_Z}+s\,e^{\_Z}+2\ln\left(-e^{\_Z}+2\right)+4\operatorname{arctanh}\left(e^{\_Z}-1\right)-2\,e^{\_Z}-2\,\_Z-2\,s+2\right)} + 1\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$

"S(x)", $\frac{\ln(1-x)\,x-\ln(x+1)\,x+\ln(1-x)-\ln(x+1)+4\,\operatorname{arctanh}(x)-x+1}{x+1}$

"h(x)", $\frac{4\,\operatorname{arctanh}(x)}{(x+1)\,(\ln(1-x)\,x-\ln(x+1)\,x+\ln(1-x)-\ln(x+1)+4\,\operatorname{arctanh}(x)-x+1)}$

"mean and variance", $\frac{1}{6}\,\pi^2-1, 4\ln(2)-\frac{1}{36}\,\pi^4$

"MF", $\int_0^1 \frac{4\,x^{r\sim}\,\operatorname{arctanh}(x)}{(x+1)^2}\,dx$

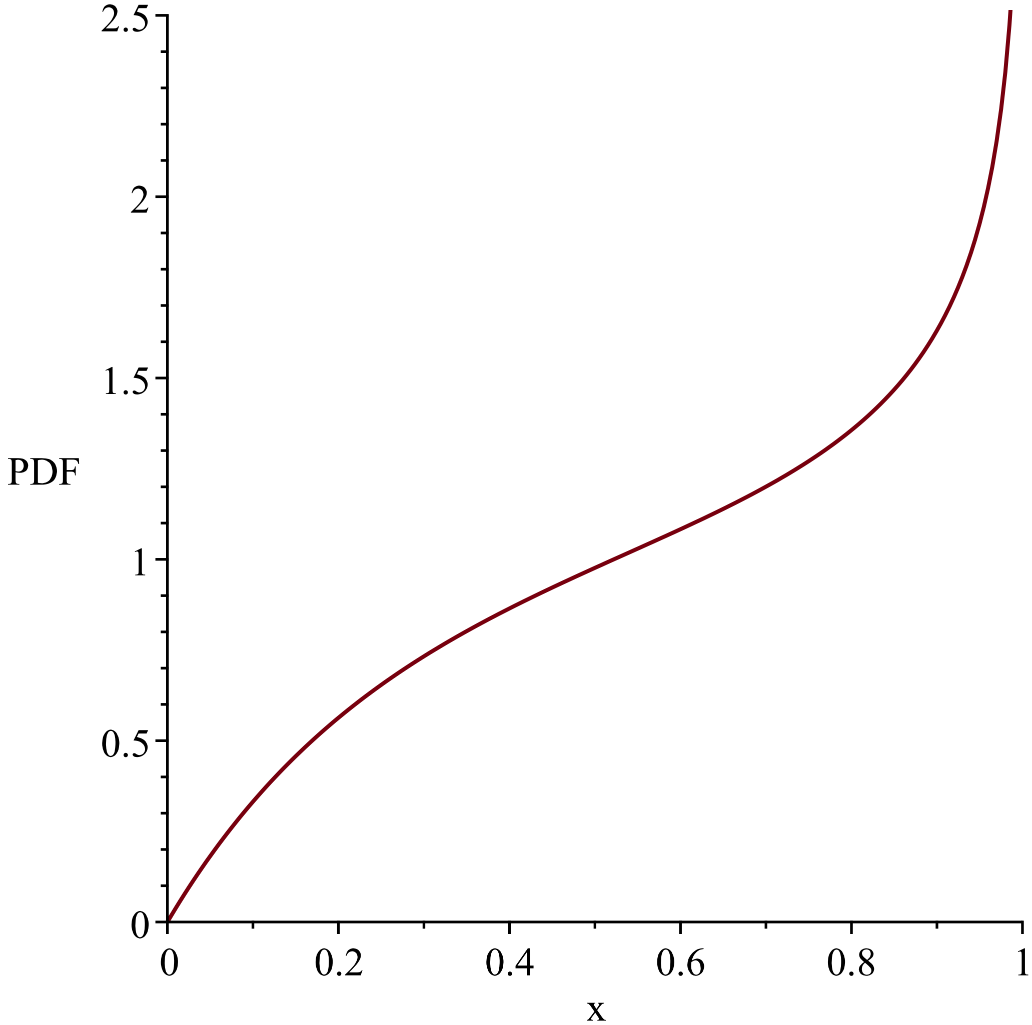
"MGF", $4\left(\int_0^1 \frac{e^{t\,x}\,\operatorname{arctanh}(x)}{(x+1)^2}\,dx\right)$

WARNING(PlotDist): High value provided by user, 40

is greater than maximum support value of the random

variable, 1

Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40
is greater than maximum support value of the random
variable, 1
Resetting high to RV's maximum support value

```
4\,{\frac {{\rm arctanh} \left(x\right)}{ \left( x+1 \right) ^
{2}}}
```

"i is", 12,
" ---
----------"

$$g := t \to \sinh(t)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{4 \operatorname{arcsinh}(y\sim)}{\left(y\sim + \sqrt{y\sim^2+1}\right)^2 \sqrt{y\sim^2+1}}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\sinh(x)$, "base", $4\,x\,e^{-2x}$, "GammaRV(2.2)"

$$\text{"f(x)"}, \frac{4 \operatorname{arcsinh}(x)}{\left(x+\sqrt{x^2+1}\right)^2 \sqrt{x^2+1}}$$

$$\text{"F(x)"}, 4 x^2 \ln\left(-x+\sqrt{x^2+1}\right) - 2 x^2 - 4 x \sqrt{x^2+1} \ln\left(-x+\sqrt{x^2+1}\right) + 2 x \sqrt{x^2+1} + 2 \ln\left(-x+\sqrt{x^2+1}\right)$$

$$\text{"IDF(x)"}, \left[\left[s \rightarrow \frac{1}{2} \frac{-s+1+\operatorname{LambertW}\left((s-1)\, e^{-1}\right)}{\operatorname{LambertW}\left((s-1)\, e^{-1}\right) \sqrt{\frac{s-1}{\operatorname{LambertW}\left((s-1)\, e^{-1}\right)}}}\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

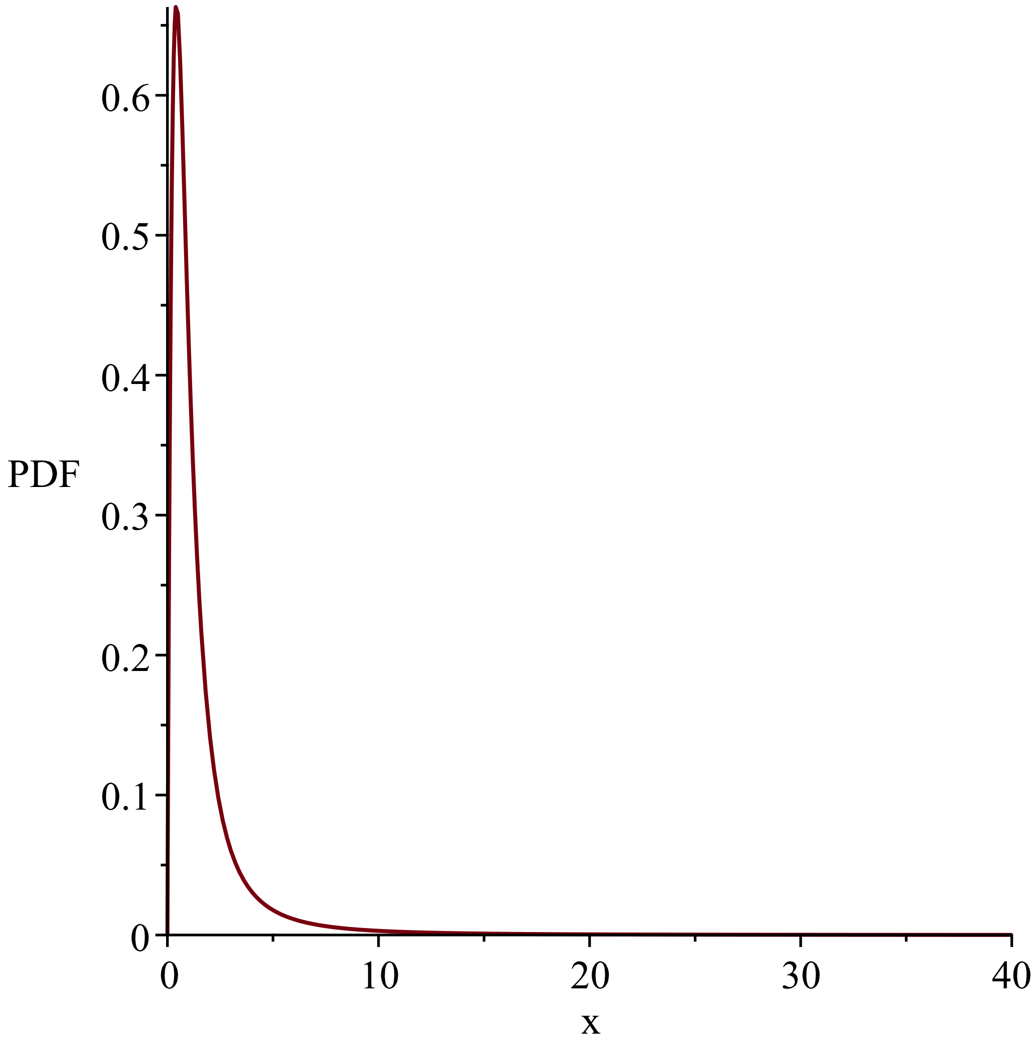
$$\text{"S(x)"}, 1 - 4 x^2 \ln\left(-x+\sqrt{x^2+1}\right) + 2 x^2 + 4 x \sqrt{x^2+1} \ln\left(-x+\sqrt{x^2+1}\right) - 2 x \sqrt{x^2+1} - 2 \ln\left(-x+\sqrt{x^2+1}\right)$$

$$\text{"h(x)"}, (4 \operatorname{arcsinh}(x)) \Big/ \left(\left(x+\sqrt{x^2+1}\right)^2 \sqrt{x^2+1} \left(1 - 4 x^2 \ln\left(-x+\sqrt{x^2+1}\right) + 2 x^2 + 4 x \sqrt{x^2+1} \ln\left(-x+\sqrt{x^2+1}\right) - 2 x \sqrt{x^2+1} - 2 \ln\left(-x+\sqrt{x^2+1}\right)\right)\right)$$

$$\text{"mean and variance"}, \frac{16}{9}, \infty$$

$$\text{"MF"}, \int_0^\infty \frac{4 x^{r\sim} \operatorname{arcsinh}(x)}{\left(x+\sqrt{x^2+1}\right)^2 \sqrt{x^2+1}} \, dx$$

$$\text{"MGF"}, \int_0^\infty \frac{4 e^{t x} \operatorname{arcsinh}(x)}{\left(x+\sqrt{x^2+1}\right)^2 \sqrt{x^2+1}} \, dx$$




```
4\,{\frac {{\rm arcsinh} \left(x\right)}{ \left( x+\sqrt {{x}^
{2}+1}
 \right) ^{2}\sqrt {{x}^{2}+1}}}
```

"i is", 13,

" ---
----------"

$$g := t \rightarrow \operatorname{arcsinh}(t)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow 4 \sinh(y\sim)\, e^{-2 \sinh(y\sim)} \cosh(y\sim)\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{arcsinh}(x), \text{"base"}, 4\, x\, e^{-2x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, 4 \sinh(x)\, e^{-2 \sinh(x)} \cosh(x)$$

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

$$\text{"IDF(x)"}, \left[\left[s \rightarrow RootOf\left(e^{(2\_Z e^{\_Z}+1) e^{-\_Z}} + s\, e^{\_Z+e^{\_Z}} + e^{(\_Z e^{\_Z}+1) e^{-\_Z}} - e^{\_Z+e^{\_Z}} - e^{e^{-\_Z}}\right)\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

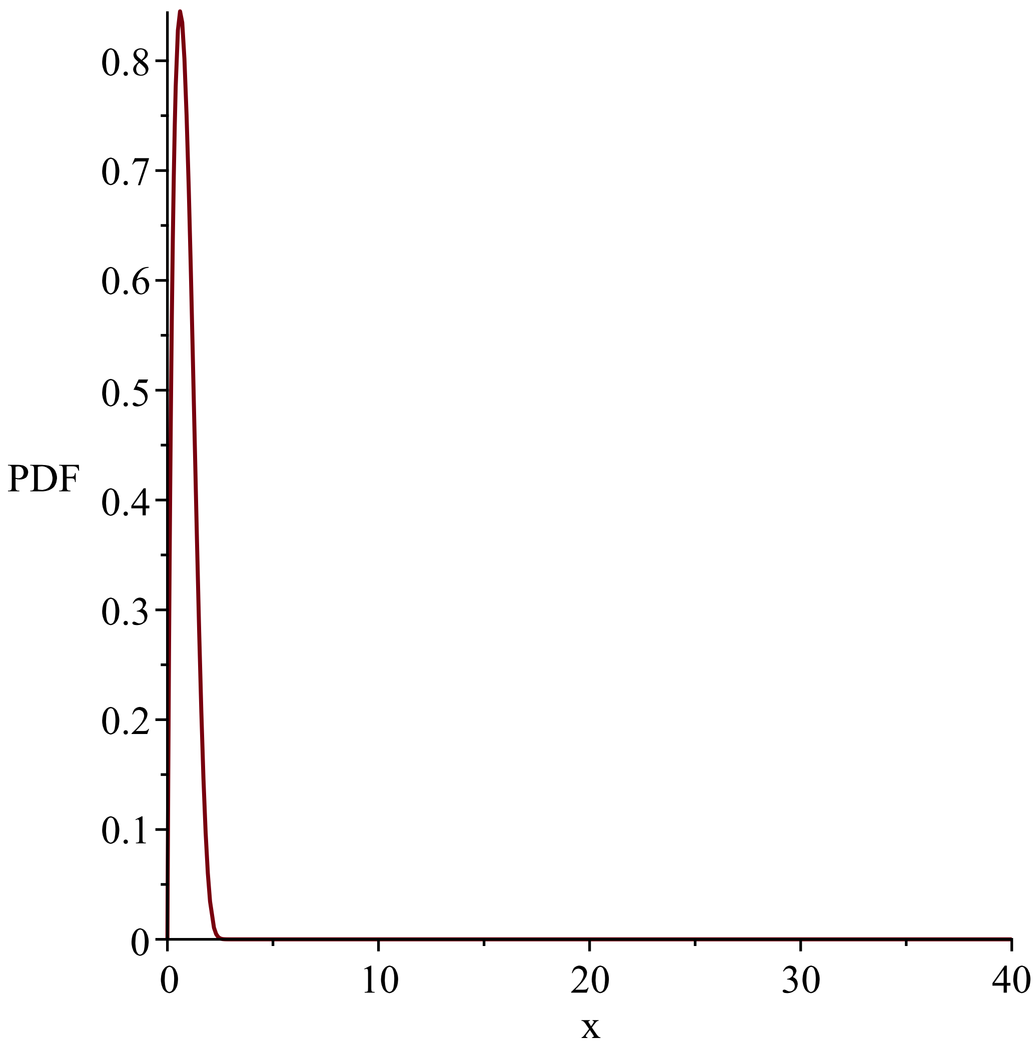
$$"S(x)", e^{-e^x - x + (2 x e^x + 1) e^{-x}} + e^{-e^x - x + (x e^x + 1) e^{-x}} - e^{-e^x - x + e^{-x}}$$

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

$$"mean and variance", \int_0^\infty 2 x\, e^{-2 \sinh(x)} \sinh(2 x)\, dx, \int_0^\infty 2 x^2 e^{-2 \sinh(x)} \sinh(2 x)\, dx - \left(\int_0^\infty 2 x\, e^{-2 \sinh(x)} \sinh(2 x)\, dx\right)^2$$

$$"MF", \int_0^\infty 4 x^{r\sim} \sinh(x)\, e^{-2 \sinh(x)} \cosh(x)\, dx$$

$$"MGF", \int_0^\infty 2\, e^{t x - 2 \sinh(x)} \sinh(2 x)\, dx$$




```
4\,\sinh \left( x \right) {{\rm e}^{-2\,\sinh \left( x \right) }
}\cosh
 \left( x \right)
```

"i is", 14,

" --
----------"

$$g := t \to \operatorname{csch}(t+1)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{4\,(-1+\operatorname{arccsch}(y\sim))\,\mathrm{e}^{2-2\operatorname{arccsch}(y\sim)}}{\sqrt{y\sim^2+1}\;|y\sim|}\right], \left[0, -\frac{2}{-\mathrm{e}+\mathrm{e}^{-1}}\right], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{csch}(x+1), \text{"base"}, 4\,x\,\mathrm{e}^{-2x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, \frac{4\,(-1+\operatorname{arccsch}(x))\,\mathrm{e}^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}\;|x|}$$

$$\text{"F(x)"}, 4\left(\int_0^x \frac{(-1+\operatorname{arccsch}(t))\,\mathrm{e}^{2-2\operatorname{arccsch}(t)}}{\sqrt{t^2+1}\;|t|}\,\mathrm{d}t\right)$$

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

$$\text{"h(x)"}, -\frac{4\,(-1+\operatorname{arccsch}(x))\,\mathrm{e}^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}\;|x|\left(-1+4\left(\int_0^x \frac{(-1+\operatorname{arccsch}(t))\,\mathrm{e}^{2-2\operatorname{arccsch}(t)}}{\sqrt{t^2+1}\;|t|}\,\mathrm{d}t\right)\right)}$$

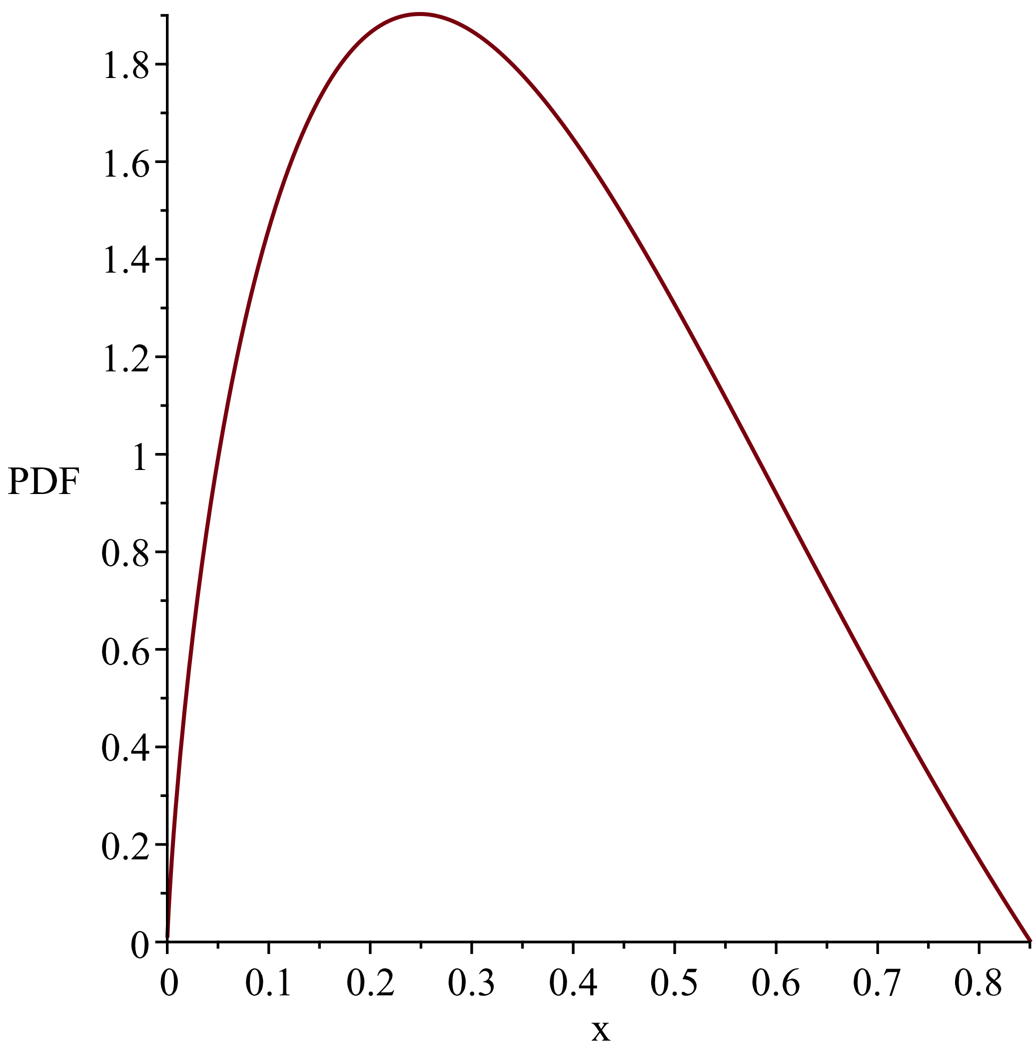
$$\text{"mean and variance"}, 4\left(\int_0^{\frac{2\mathrm{e}}{\mathrm{e}^2-1}} \frac{(-1+\operatorname{arccsch}(x))\,\mathrm{e}^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}}\,\mathrm{d}x\right), 4\left(\int_0^{\frac{2\mathrm{e}}{\mathrm{e}^2-1}} \frac{x\,(-1+\operatorname{arccsch}(x))\,\mathrm{e}^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}}\,\mathrm{d}x\right) - 16\left(\int_0^{\frac{2\mathrm{e}}{\mathrm{e}^2-1}} \frac{(-1+\operatorname{arccsch}(x))\,\mathrm{e}^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}}\,\mathrm{d}x\right)^2$$

$$\text{"MF"}, \int_0^{-\frac{2}{-e+e^{-1}}} \frac{4\, x^{r\sim} \left(-1 + \operatorname{arccsch}(x)\right) e^{2 - 2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}\, |x|} \, dx$$

$$\text{"MGF"}, 4 \left(\int_0^{\frac{2e}{e^2-1}} \frac{\left(-1 + \operatorname{arccsch}(x)\right) e^{t x + 2 - 2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}\, x} \, dx \right)$$

WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $-\frac{2}{-e+e^{-1}}$

Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random*

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

Resetting high to RV's maximum support value

```
4\,{\frac { \left( -1+{\rm arccsch} \left(x\right) \right) {{\rm e}^{2
-2\,{\rm arccsch} \left(x\right)}}}{\sqrt {{x}^{2}+1} \left| x
 \right| }}
```

"i is", 15,

" ---"

$$g := t \to \operatorname{arccsch}(t+1)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y{\sim} \to -\frac{4\,(\sinh(y{\sim})-1)\,e^{\frac{2(\sinh(y{\sim})-1)}{\sinh(y{\sim})}}\cosh(y{\sim})}{\sinh(y{\sim})^3}\right], \left[0, \ln\left(1+\sqrt{2}\right)\right], \left[\text{"Continuous"}, \text{"PDF"}\right]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{arccsch}(x+1), \text{"base"}, 4\,x\,e^{-2x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, -\frac{4\,(\sinh(x)-1)\,e^{\frac{2(\sinh(x)-1)}{\sinh(x)}}\cosh(x)}{\sinh(x)^3}$$

$$\text{"F(x)"}, \frac{e^{-\frac{2(-e^{2x}+1+2e^x)}{e^{2x}-1}}\left(-e^{2x}+4\,e^x+1\right)}{e^{2x}-1}$$

$$\text{"IDF(x)"}, [[\ ], [0, 1], [\text{"Continuous"}, \text{"IDF"}]]$$

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

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

$$\text{"mean and variance"}, -4\left(\int_0^{\ln\left(1+\sqrt{2}\right)} \frac{x\,(\sinh(x)-1)\,e^{\frac{2(\sinh(x)-1)}{\sinh(x)}}\cosh(x)}{\sinh(x)^3}\,dx\right), -4\,\Bigg($$

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

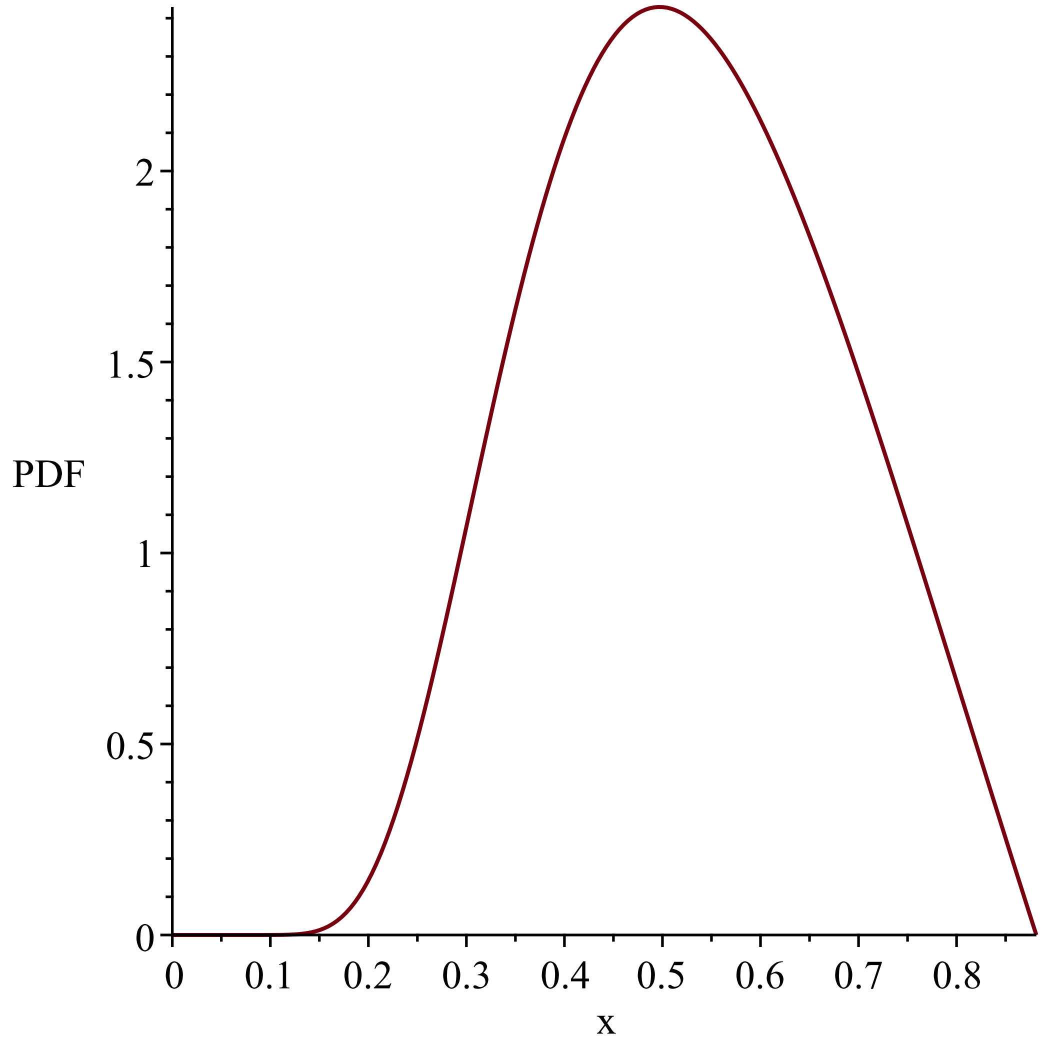
$$- 16 \left(\int_0^{\ln(1+\sqrt{2})} \frac{x (\sinh(x) - 1)\, e^{\frac{2(\sinh(x)-1)}{\sinh(x)}} \cosh(x)}{\sinh(x)^3}\, dx \right)^2$$

$$\text{"MF"}, \int_0^{\ln(1+\sqrt{2})} \left(-\frac{4\, x^{r\sim} (\sinh(x) - 1)\, e^{\frac{2(\sinh(x)-1)}{\sinh(x)}} \cosh(x)}{\sinh(x)^3} \right) dx$$

$$\text{"MGF"}, -4 \left(\int_0^{\ln(1+\sqrt{2})} \frac{e^{\frac{t\, x \sinh(x) + 2\sinh(x) - 2}{\sinh(x)}} \cosh(x)\, (\sinh(x) - 1)}{\sinh(x)^3}\, dx \right)$$

WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable*, $\ln(1+\sqrt{2})$

Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable*, $\ln\left(1+\sqrt{2}\right)$ *Resetting high to RV's maximum support value*

```
-4\,{\frac { \left( \sinh \left( x \right) -1 \right) \cosh
\left( x
 \right) }{ \left( \sinh \left( x \right)  \right) ^{3}}{{\rm e}
^{2\,{
\frac {\sinh \left( x \right) -1}{\sinh \left( x \right) }}}}}
```

"i is", 16,

" ---"

$$g := t \rightarrow \frac{1}{\tanh(t+1)}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y{\sim} \rightarrow \frac{4\left(-1+\operatorname{arctanh}\left(\frac{1}{y{\sim}}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{y{\sim}}\right)}}{y{\sim}^2-1}\right], \left[1, \frac{-e-e^{-1}}{-e+e^{-1}}\right], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \frac{1}{\tanh(x+1)}, \text{"base"}, 4\,x\,e^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, \frac{4\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}$$

$$\text{"F(x)"}, 4\left(\int_1^x \frac{\left(-1+\operatorname{arctanh}\left(\frac{1}{t}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{t}\right)}}{t^2-1}\,\mathrm{d}t\right)$$

$$\text{"S(x)"}, 1-4\left(\int_1^x \frac{\left(-1+\operatorname{arctanh}\left(\frac{1}{t}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{t}\right)}}{t^2-1}\,\mathrm{d}t\right)$$

$$\text{"h(x)"}, -\frac{4\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{(x^2-1)\left(-1+4\left(\int_1^x \frac{\left(-1+\operatorname{arctanh}\left(\frac{1}{t}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{t}\right)}}{t^2-1}\,\mathrm{d}t\right)\right)}$$

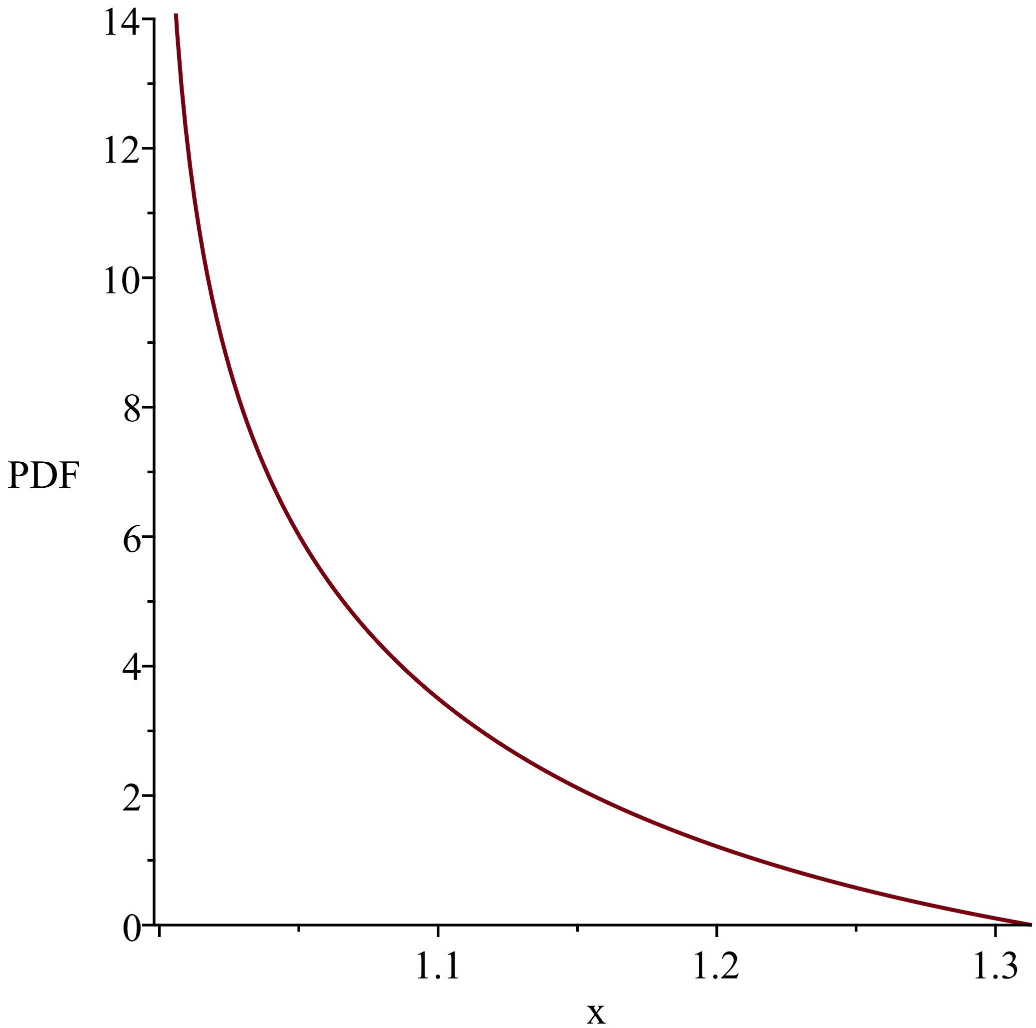
$$\text{"mean and variance"}, 4\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,\mathrm{d}x\right), 4\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x^2\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,\mathrm{d}x\right)$$

$$-16\left(\int_{1}^{\frac{e^2+1}{e^2-1}} \frac{x\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx\right)^2$$

$$\text{"MF"}, \int_{1}^{\frac{-e-e^{-1}}{-e+e^{-1}}} \frac{4\,x^{r\sim}\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx$$

$$\text{"MGF"}, 4\left(\int_{1}^{\frac{e^2+1}{e^2-1}} \frac{\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right) e^{t\,x+2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx\right)$$

WARNING(PlotDist): Low value provided by user, 0
is less than minimum support value of random variable
1
Resetting low to RV's minimum support value
WARNING(PlotDist): High value provided by user, 40
is greater than maximum support value of the random
variable, $\frac{-e-e^{-1}}{-e+e^{-1}}$
Resetting high to RV's maximum support value



WARNING(PlotDist): Low value provided by user, 0
is less than minimum support value of random variable
1
Resetting low to RV's minimum support value
WARNING(PlotDist): High value provided by user, 40
is greater than maximum support value of the random
variable, $\frac{-e - e^{-1}}{-e + e^{-1}}$
Resetting high to RV's maximum support value

```
4\,{\frac { \left( -1+{\rm arctanh} \left({x}^{-1}\right)
\right) {
{\rm e}^{2-2\,{\rm arctanh} \left({x}^{-1}\right)}}}{{x}^{2}-1}}
```

"i is", 17,
" ---
----------"

$$g := t \rightarrow \frac{1}{\sinh(t+1)}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[\left[y\sim \rightarrow \frac{4\left(-1+\operatorname{arcsinh}\left(\frac{1}{y\sim}\right)\right) e^{2-2\operatorname{arcsinh}\left(\frac{1}{y\sim}\right)}}{\sqrt{y\sim^2+1}\,|y\sim|}\right], \left[0, \frac{2}{e-e^{-1}}\right], [\text{"Continuous"}, \text{"PDF"}]\right]\right.$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \frac{1}{\sinh(x+1)}, \text{"base"}, 4\,x\,e^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, \frac{4\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1}\,|x|}$$

$$\text{"F(x)"}, \frac{e^2 x^2\left(-1+2\ln\left(\sqrt{x^2+1}+1\right)-2\ln(x)\right)}{x^2+2+2\sqrt{x^2+1}}$$

$$\text{"IDF(x)"}, \left[\left[\left[s \rightarrow RootOf\left(\_Z^2 - e^{2\,RootOf\left(e^{\frac{-s\,e^{\_Z}-2+2\_Z\,e^{\_Z}-e^{\_Z}-4\_Z+2}{e^{\_Z}-2}}-e^{2\_Z}+2\,e^{\_Z}\right)} + 2\,e^{RootOf\left(e^{\frac{-s\,e^{\_Z}-2+2\_Z\,e^{\_Z}-e^{\_Z}-4\_Z+2}{e^{\_Z}-2}}-e^{2\_Z}+2\,e^{\_Z}\right)}\right)\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]\right]$$

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

"h(x)",

$$\frac{4\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}\left(x^2+2+2\sqrt{x^2+1}\right)}{\sqrt{x^2+1}\,|x|\left(-2\,x^2 e^2\ln\left(\sqrt{x^2+1}+1\right)+2\,x^2 e^2\ln(x)+x^2 e^2+x^2+2\sqrt{x^2+1}+2\right)}$$

$$\text{"mean and variance"}, 4\left(\int_0^{\frac{2\,e}{e^2-1}} \frac{\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right) e^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1}}\,dx\right), 4\,\Bigg($$

$$\int_{0}^{\frac{2\,\mathrm{e}}{\mathrm{e}^2-1}} \frac{x\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right)\mathrm{e}^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1}}\,\mathrm{d}x\Bigg)$$

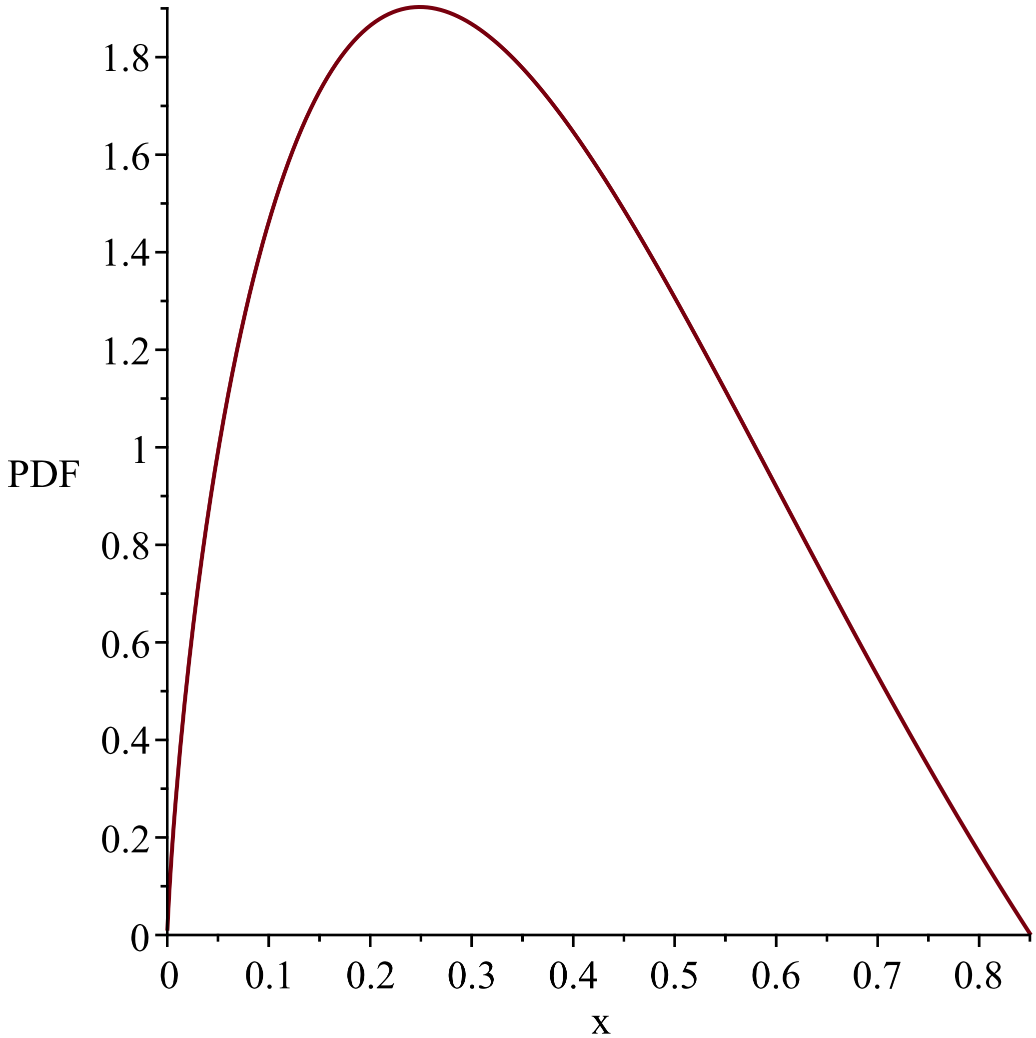
$$-16\left(\int_{0}^{\frac{2\,\mathrm{e}}{\mathrm{e}^2-1}} \frac{\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right)\mathrm{e}^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1}}\,\mathrm{d}x\right)^2$$

$$\text{"MF"},\int_{0}^{\frac{2}{\mathrm{e}-\mathrm{e}^{-1}}} \frac{4\,x^{r\sim}\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right)\mathrm{e}^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1}\;|x|}\,\mathrm{d}x$$

$$\text{"MGF"},4\left(\int_{0}^{\frac{2\,\mathrm{e}}{\mathrm{e}^2-1}} \frac{\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right)\mathrm{e}^{t\,x+2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1}\;x}\,\mathrm{d}x\right)$$

WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $\frac{2}{\mathrm{e}-\mathrm{e}^{-1}}$

Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $\frac{2}{e - e^{-1}}$

Resetting high to RV's maximum support value

```
4\,{\frac { \left( -1+{\rm arcsinh} \left({x}^{-1}\right)
\right) {
{\rm e}^{2-2\,{\rm arcsinh} \left({x}^{-1}\right)}}}{\sqrt {{x}^
{2}+1}
 \left| x \right| }}
```

"i is", 18,
" --
----------"

$$g := t \to \frac{1}{\operatorname{arcsinh}(t+1)}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{4\left(-1+\sinh\left(\frac{1}{y\sim}\right)\right) e^{2-2\sinh\left(\frac{1}{y\sim}\right)} \cosh\left(\frac{1}{y\sim}\right)}{y\sim^2}\right], \left[0, \frac{1}{\ln\left(1+\sqrt{2}\right)}\right], \left[\text{"Continuous", "PDF"}\right]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \frac{1}{\operatorname{arcsinh}(x+1)}, \text{"base"}, 4\, x\, e^{-2x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, \frac{4\left(-1+\sinh\left(\frac{1}{x}\right)\right) e^{2-2\sinh\left(\frac{1}{x}\right)} \cosh\left(\frac{1}{x}\right)}{x^2}$$

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

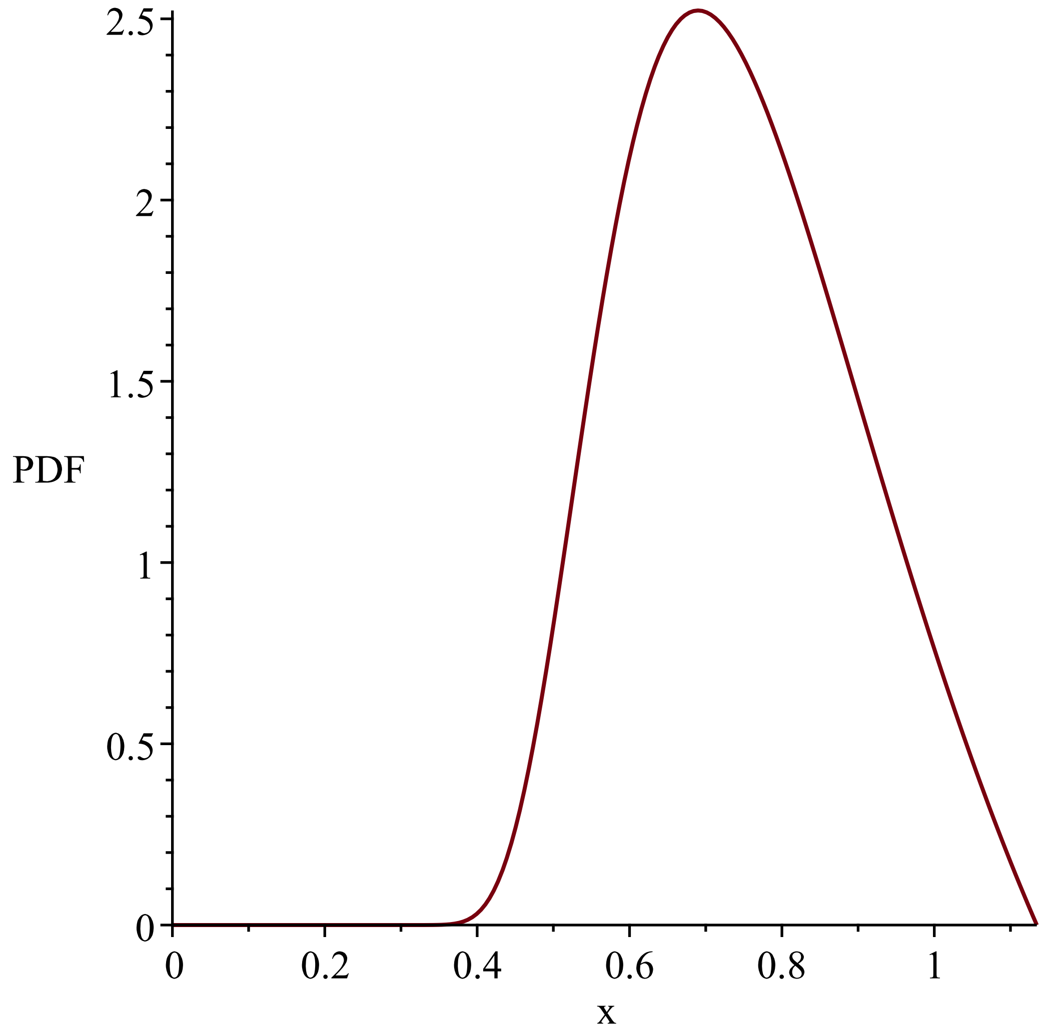
$$\text{"IDF(x)"}, \left[\left[s \to \frac{1}{RootOf\left(e^{2\_Z}+e^{\_Z} \ln\left(-\frac{s}{-e^{2\_Z}+e^{\_Z}+1}\right)+\_Z e^{\_Z}-2 e^{\_Z}-1\right)}\right], [0, 1], \left[\text{"Continuous", "IDF"}\right]\right]$$

$$\text{"S(x)"}, -e^{\frac{\left(-e^{\frac{2}{x}} x+2 e^{\frac{1}{x}} x+e^{\frac{1}{x}}+x\right) e^{-\frac{1}{x}}}{x}}+e^{\left(-e^{\frac{2}{x}}+2 e^{\frac{1}{x}}+1\right) e^{-\frac{1}{x}}}+e^{\frac{\left(-e^{\frac{2}{x}} x+2 e^{\frac{1}{x}} x-e^{\frac{1}{x}}+x\right) e^{-\frac{1}{x}}}{x}}+1$$

$$\text{"h(x)"}, -\left(4\left(-1+\sinh\left(\frac{1}{x}\right)\right) e^{2-2\sinh\left(\frac{1}{x}\right)} \cosh\left(\frac{1}{x}\right)\right) \Big/ \left(x^2\left(e^{\frac{\left(-e^{\frac{2}{x}} x+2 e^{\frac{1}{x}} x+e^{\frac{1}{x}}+x\right) e^{-\frac{1}{x}}}{x}}-e^{\left(-e^{\frac{2}{x}}+2 e^{\frac{1}{x}}+1\right) e^{-\frac{1}{x}}}-e^{\frac{\left(-e^{\frac{2}{x}} x+2 e^{\frac{1}{x}} x-e^{\frac{1}{x}}+x\right) e^{-\frac{1}{x}}}{x}}-1\right)\right)$$

WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $\frac{1}{\ln\left(1+\sqrt{2}\right)}$

Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable*, $\frac{1}{\ln\left(1+\sqrt{2}\right)}$

Resetting high to RV's maximum support value

```
4\,{\frac { \left( -1+\sinh \left( {x}^{-1} \right)  \right) {
{\rm e}^
{2-2\,\sinh \left( {x}^{-1} \right) }}\cosh \left( {x}^{-1}
\right) }{
{x}^{2}}}
```

"i is", 19,
" ---
----------"

$$g := t \rightarrow \frac{1}{\operatorname{csch}(t)} + 1$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{4\,\mathrm{arccsch}\left(\frac{1}{y\sim-1}\right)}{\sqrt{y\sim^2-2\,y\sim+2}\,\left(y\sim-1+\sqrt{y\sim^2-2\,y\sim+2}\right)^2}\right], [1, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \frac{1}{\mathrm{csch}(x)}+1, \text{"base"}, 4\,x\,\mathrm{e}^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, \frac{4\,\mathrm{arccsch}\left(\frac{1}{x-1}\right)}{\sqrt{x^2-2\,x+2}\,\left(x-1+\sqrt{x^2-2\,x+2}\right)^2}$$

$$\text{"F(x)"}, 4\left(\int_1^x \frac{\mathrm{arccsch}\left(\frac{1}{t-1}\right)}{\sqrt{t^2-2\,t+2}\,\left(t-1+\sqrt{t^2-2\,t+2}\right)^2}\,\mathrm{d}t\right)$$

$$\text{"S(x)"}, 1-4\left(\int_1^x \frac{\mathrm{arccsch}\left(\frac{1}{t-1}\right)}{\sqrt{t^2-2\,t+2}\,\left(t-1+\sqrt{t^2-2\,t+2}\right)^2}\,\mathrm{d}t\right)$$

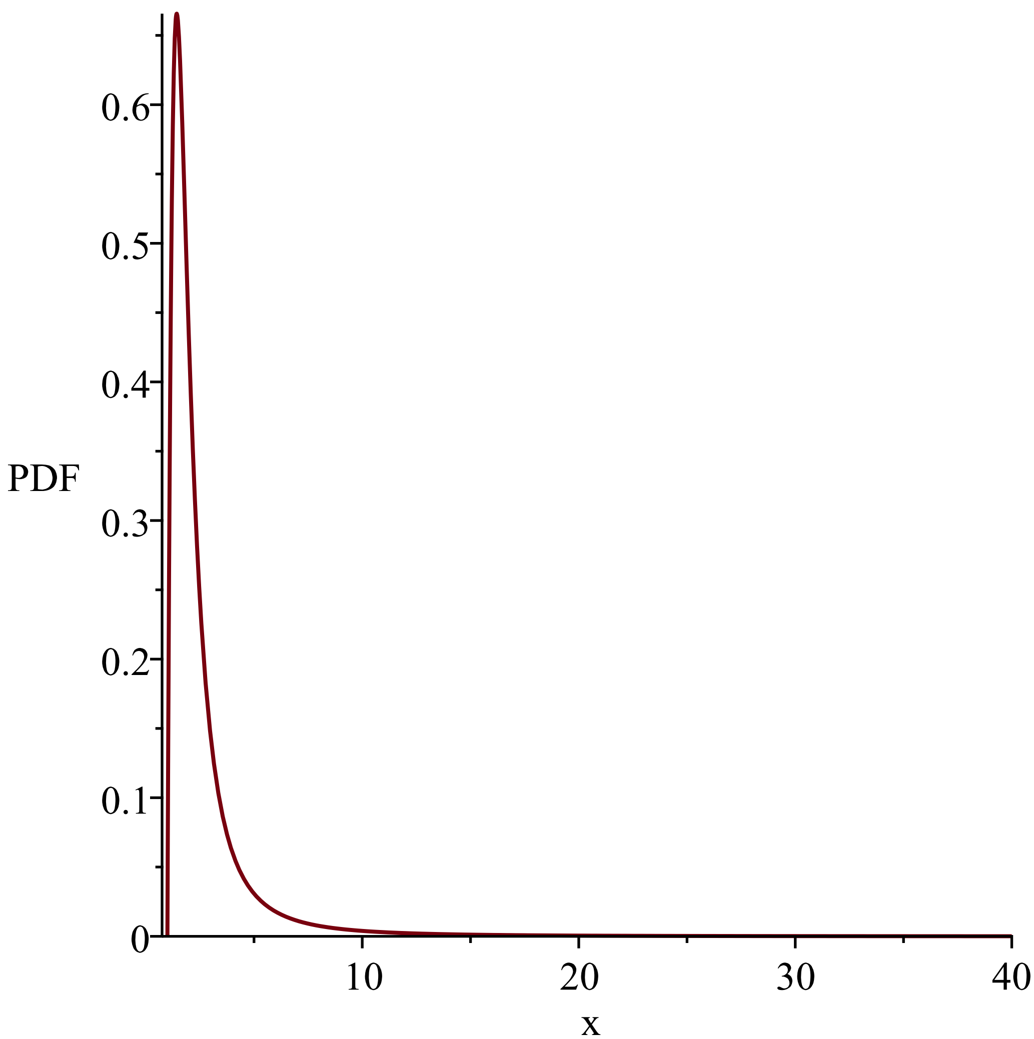
$$\text{"h(x)"}, -\left(4\,\mathrm{arccsch}\left(\frac{1}{x-1}\right)\right) \Bigg/ \left(\sqrt{x^2-2\,x+2}\,\left(x-1+\sqrt{x^2-2\,x+2}\right)^2\left(-1+4\left(\int_1^x \frac{\mathrm{arccsch}\left(\frac{1}{t-1}\right)}{\sqrt{t^2-2\,t+2}\,\left(t-1+\sqrt{t^2-2\,t+2}\right)^2}\,\mathrm{d}t\right)\right)\right)$$

$$\text{"mean and variance"}, \int_1^\infty \frac{4\,x\,\mathrm{arccsch}\left(\frac{1}{x-1}\right)}{\sqrt{x^2-2\,x+2}\,\left(x-1+\sqrt{x^2-2\,x+2}\right)^2}\,\mathrm{d}x, \infty - \left(\int_1^\infty \frac{4\,x\,\mathrm{arccsch}\left(\frac{1}{x-1}\right)}{\sqrt{x^2-2\,x+2}\,\left(x-1+\sqrt{x^2-2\,x+2}\right)^2}\,\mathrm{d}x\right)^2$$

$$"MF", \int_1^{\infty} \frac{4\, x^{r\sim} \operatorname{arccsch}\left(\frac{1}{x-1}\right)}{\sqrt{x^2-2x+2}\,\left(x-1+\sqrt{x^2-2x+2}\right)^2}\, dx$$

$$"MGF", \int_1^{\infty} \frac{4\, e^{t x} \operatorname{arccsch}\left(\frac{1}{x-1}\right)}{\sqrt{x^2-2x+2}\,\left(x-1+\sqrt{x^2-2x+2}\right)^2}\, dx$$

WARNING(PlotDist): Low value provided by user, 0
is less than minimum support value of random variable
1
Resetting low to RV's minimum support value



WARNING(PlotDist): Low value provided by user, 0
is less than minimum support value of random variable
1
Resetting low to RV's minimum support value

```
4\,{\frac {{\rm arccsch} \left( \left( x-1 \right) ^{-1}\right)}
```

```
{
\sqrt {{x}^{2}-2\,x+2} \left( x-1+\sqrt {{x}^{2}-2\,x+2} \right)
^{2}}
}
```

"i is", 20,

" ---"

$$g := t \to \tanh\left(\frac{1}{t}\right)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to -\frac{4\,e^{-\frac{2}{\operatorname{arctanh}(y\sim)}}}{\operatorname{arctanh}(y\sim)^3\,(y\sim^2-1)}\right], [0, 1], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \tanh\left(\frac{1}{x}\right), \text{"base"}, 4\,x\,e^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, -\frac{4\,e^{-\frac{2}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)^3\,(x^2-1)}$$

$$\text{"F(x)"}, -4\left(\int_0^x \frac{e^{-\frac{2}{\operatorname{arctanh}(t)}}}{\operatorname{arctanh}(t)^3\,(t^2-1)}\,dt\right)$$

$$\text{"S(x)"}, 1+4\left(\int_0^x \frac{e^{-\frac{2}{\operatorname{arctanh}(t)}}}{\operatorname{arctanh}(t)^3\,(t^2-1)}\,dt\right)$$

$$\text{"h(x)"}, -\frac{4\,e^{-\frac{2}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)^3\,(x^2-1)\left(1+4\left(\int_0^x \frac{e^{-\frac{2}{\operatorname{arctanh}(t)}}}{\operatorname{arctanh}(t)^3\,(t^2-1)}\,dt\right)\right)}$$

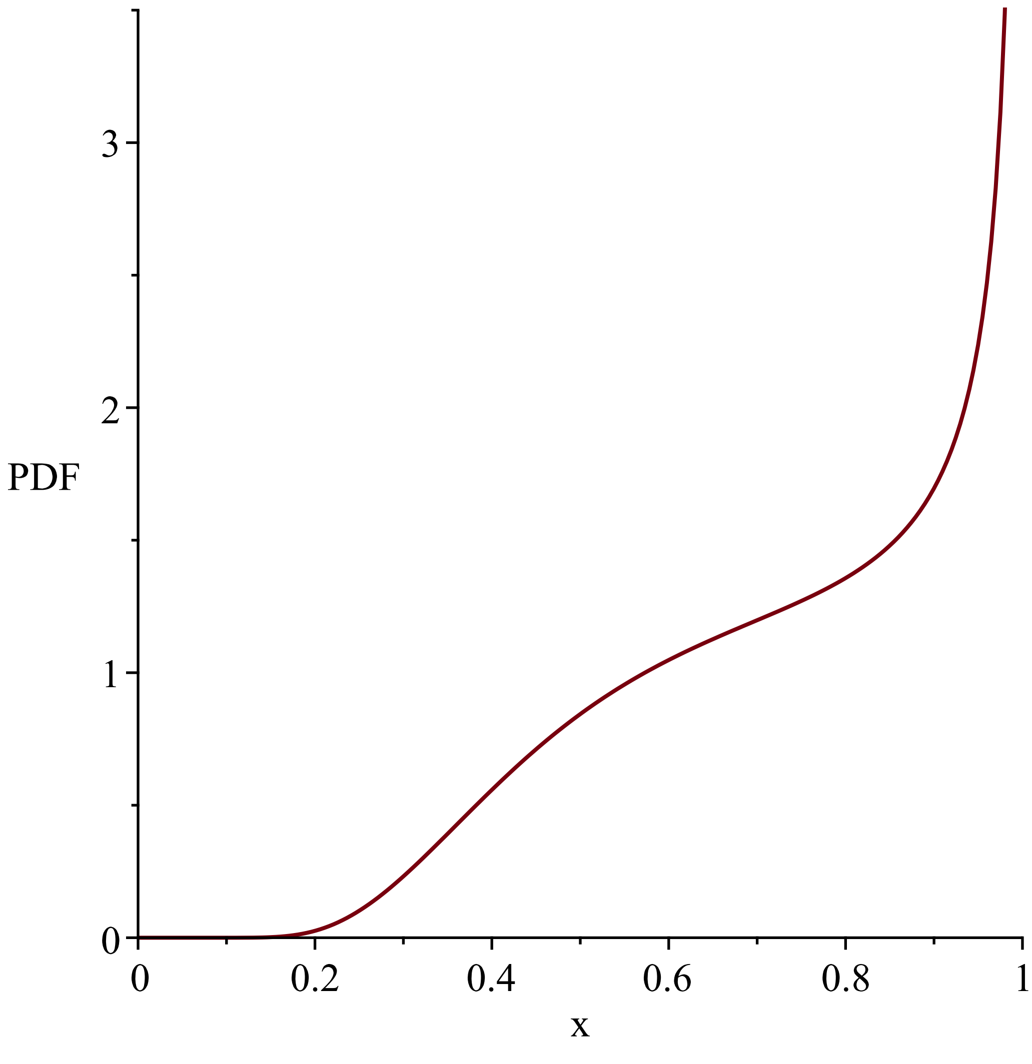
$$\text{"mean and variance"}, -4\left(\int_0^1 \frac{x\,e^{-\frac{2}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)^3\,(x^2-1)}\,dx\right), -4\left(\int_0^1 \frac{x^2\,e^{-\frac{2}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)^3\,(x^2-1)}\,dx\right)$$

$$-16\left(\int_0^1 \frac{x\,e^{-\frac{2}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)^3\,(x^2-1)}\,dx\right)^2$$

$$"\mathrm{MF}", \int_0^1 \left(-\frac{4\, x^{r\sim}\, \mathrm{e}^{-\frac{2}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)^3\, (x^2-1)} \right) \mathrm{d}x$$

$$"\mathrm{MGF}", -4 \left(\int_0^1 \frac{\mathrm{e}^{\frac{t\, x \operatorname{arctanh}(x) - 2}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)^3\, (x^2-1)}\, \mathrm{d}x \right)$$

WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* 1
Resetting high to RV's maximum support value



WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* 1
Resetting high to RV's maximum support value

```
-4\,{\frac {1}{ \left( {\rm arctanh} \left(x\right) \right) ^{3}
 \left( {x}^{2}-1 \right) }{{\rm e}^{-2\, \left( {\rm arctanh}
```

```
\left(x
\right) \right) ^{-1}}}}
```
"i is", 21,

" ---"

$$g := t \to \operatorname{csch}\left(\frac{1}{t}\right)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{4\, e^{-\frac{2}{\operatorname{arccsch}(y\sim)}}}{\sqrt{y\sim^2+1}\ \operatorname{arccsch}(y\sim)^3\, |y\sim|}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{csch}\left(\frac{1}{x}\right), \text{"base"}, 4\, x\, e^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, \frac{4\, e^{-\frac{2}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\ \operatorname{arccsch}(x)^3\, |x|}$$

$$\text{"F(x)"}, 4 \left(\int_0^x \frac{e^{-\frac{2}{\operatorname{arccsch}(t)}}}{\sqrt{t^2+1}\ \operatorname{arccsch}(t)^3\, |t|}\, \mathrm{d}t\right)$$

$$\text{"S(x)"}, 1 - 4 \left(\int_0^x \frac{e^{-\frac{2}{\operatorname{arccsch}(t)}}}{\sqrt{t^2+1}\ \operatorname{arccsch}(t)^3\, |t|}\, \mathrm{d}t\right)$$

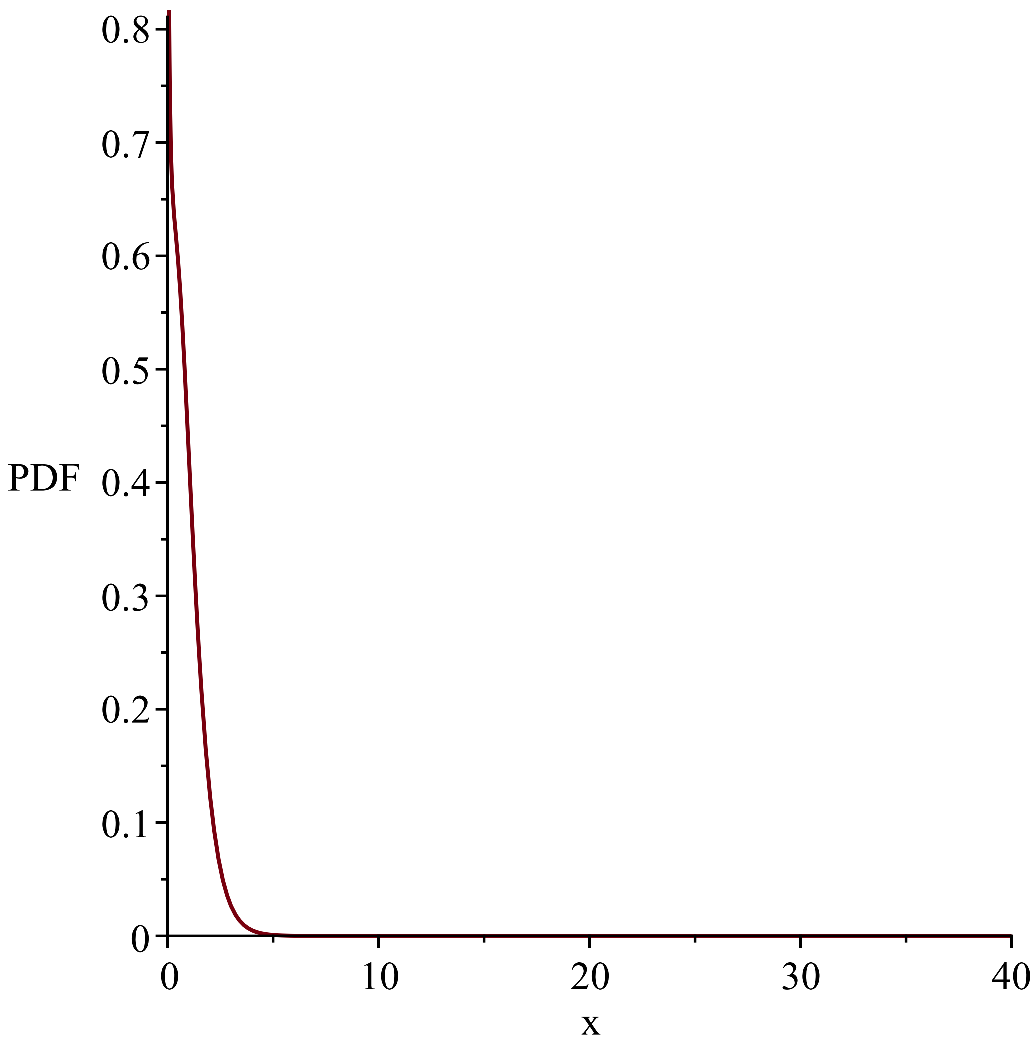
$$\text{"h(x)"}, -\frac{4\, e^{-\frac{2}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\ \operatorname{arccsch}(x)^3\, |x| \left(-1 + 4 \left(\int_0^x \frac{e^{-\frac{2}{\operatorname{arccsch}(t)}}}{\sqrt{t^2+1}\ \operatorname{arccsch}(t)^3\, |t|}\, \mathrm{d}t\right)\right)}$$

$$\text{"mean and variance"}, \int_0^\infty \frac{4\, e^{-\frac{2}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\ \operatorname{arccsch}(x)^3}\, \mathrm{d}x, \int_0^\infty \frac{4\, x\, e^{-\frac{2}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\ \operatorname{arccsch}(x)^3}\, \mathrm{d}x$$

$$- \left(\int_0^\infty \frac{4\, e^{-\frac{2}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\ \operatorname{arccsch}(x)^3}\, \mathrm{d}x\right)^2$$

$$\text{"MF"}, \int_{0}^{\infty} \frac{4\, x^{r\sim}\, \mathrm{e}^{-\frac{2}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\, \operatorname{arccsch}(x)^3\, |x|}\, \mathrm{d}x$$

$$\text{"MGF"}, \int_{0}^{\infty} \frac{4\, \mathrm{e}^{\frac{t\, x \operatorname{arccsch}(x) - 2}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\, \operatorname{arccsch}(x)^3\, x}\, \mathrm{d}x$$




```
4\,{\frac {1}{\sqrt {{x}^{2}+1} \left( {\rm arccsch} \left
(x\right)
 \right) ^{3} \left| x \right| }{{\rm e}^{-2\, \left( {\rm
arccsch}
\left(x\right) \right) ^{-1}}}}
```

"i is", 22,

" ---
----------"

$$g := t \rightarrow \operatorname{arccsch}\left(\frac{1}{t}\right)$$

$$l := 0$$

$$u := \infty$$

$$Temp := [[y\sim \rightarrow 4\,e^{-2\sinh(y\sim)}\cosh(y\sim)\sinh(y\sim)], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{arccsch}\left(\frac{1}{x}\right), \text{"base"}, 4\,x\,e^{-2\,x}, \text{"GammaRV(2.2)"}$$

$$\text{"f(x)"}, 4\,e^{-2\sinh(x)}\cosh(x)\sinh(x)$$

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

$$\text{"IDF(x)"}, \left[\left[s \rightarrow RootOf\left(e^{(2\_Z\,e^{\_Z}+1)\,e^{-\_Z}} + s\,e^{\_Z+e^{\_Z}} + e^{(\_Z\,e^{\_Z}+1)\,e^{-\_Z}} - e^{\_Z+e^{\_Z}} - e^{e^{-\_Z}}\right)\right], [0, 1], [\text{"Continuous"}, \text{"IDF"}]\right]$$

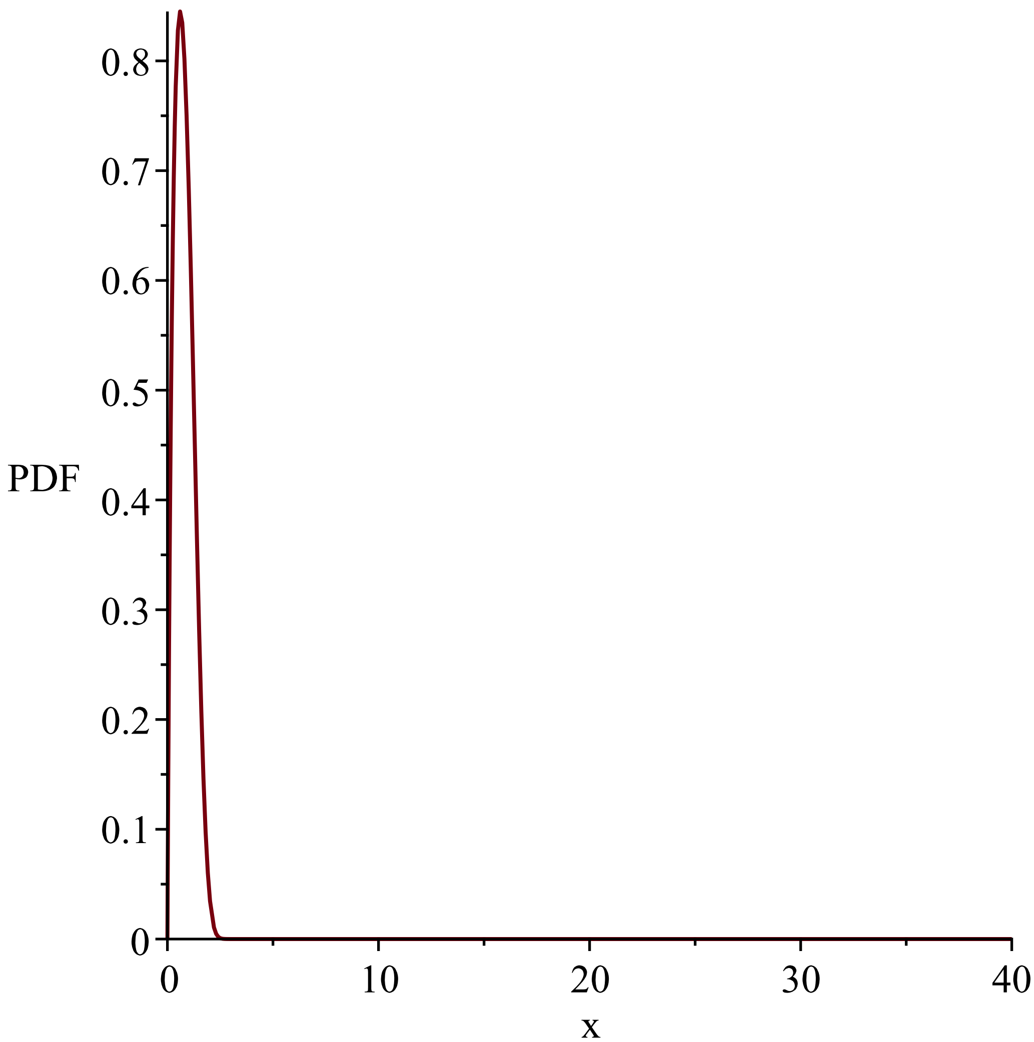
$$\text{"S(x)"}, -e^{-e^{x}-x+e^{-x}} + e^{-e^{x}-x+(2\,x\,e^{x}+1)\,e^{-x}} + e^{-e^{x}-x+(x\,e^{x}+1)\,e^{-x}}$$

$$\text{"h(x)"}, \frac{4\sinh(x)\,e^{-2\sinh(x)}\cosh(x)}{e^{-(e^{2\,x}-x\,e^{x}-1)\,e^{-x}} + e^{-(e^{2\,x}-1)\,e^{-x}} - e^{-(e^{2\,x}+x\,e^{x}-1)\,e^{-x}}}$$

$$\text{"mean and variance"}, \int_0^{\infty} 2\,x\,e^{-2\sinh(x)}\sinh(2\,x)\,dx, \int_0^{\infty} 2\,x^2\,e^{-2\sinh(x)}\sinh(2\,x)\,dx - \left(\int_0^{\infty} 2\,x\,e^{-2\sinh(x)}\sinh(2\,x)\,dx\right)^2$$

$$\text{"MF"}, \int_0^{\infty} 4\,x^{r\sim}\,e^{-2\sinh(x)}\cosh(x)\sinh(x)\,dx$$

$$\text{"MGF"}, \int_0^{\infty} 2\,e^{t\,x-2\sinh(x)}\sinh(2\,x)\,dx$$




```
4\,{{\rm e}^{-2\,\sinh \left( x \right) }}\cosh \left( x \right)
\sinh
 \left( x \right)
```