"i is", 6,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

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

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

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

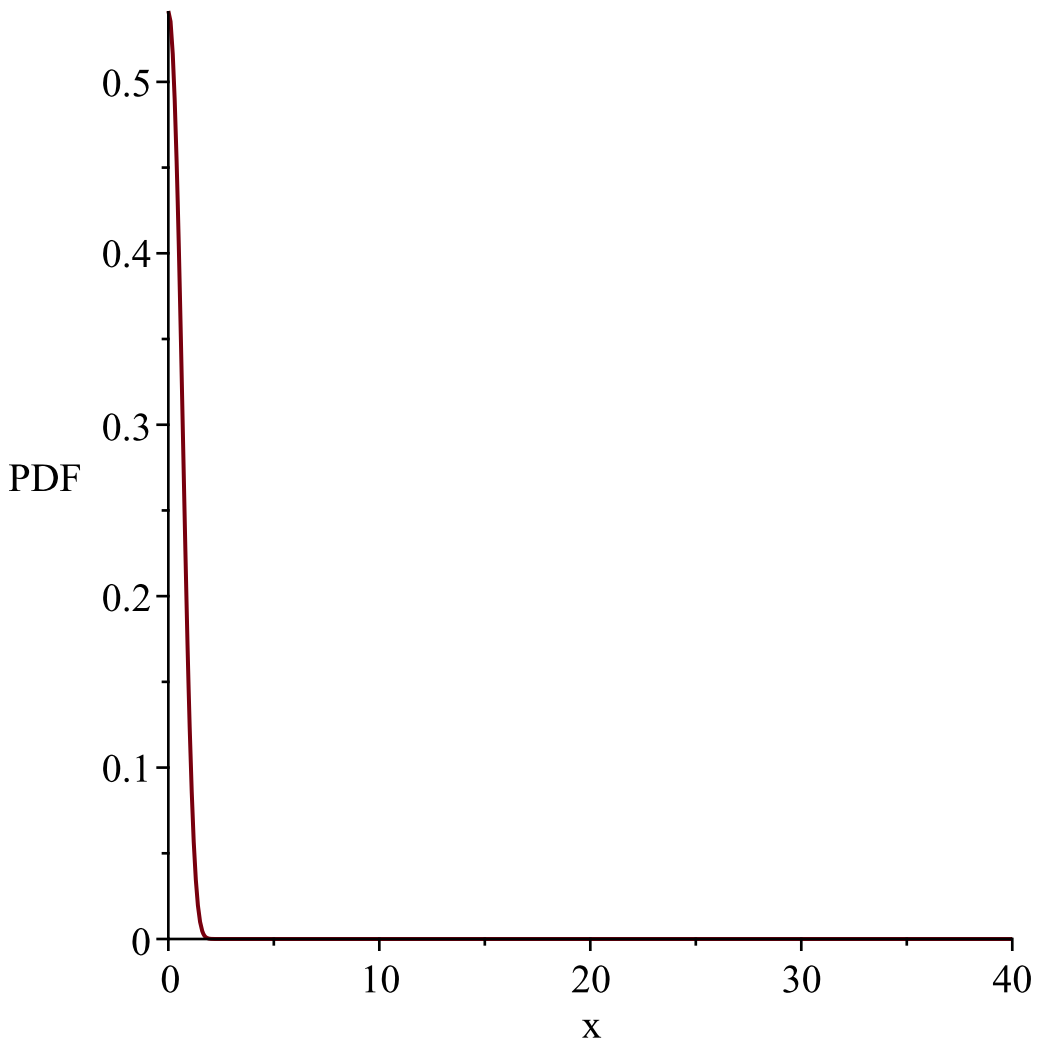
"S(x)", $2\,e^{x - 2\,e^{x}} + e^{-2\,e^{x}}$

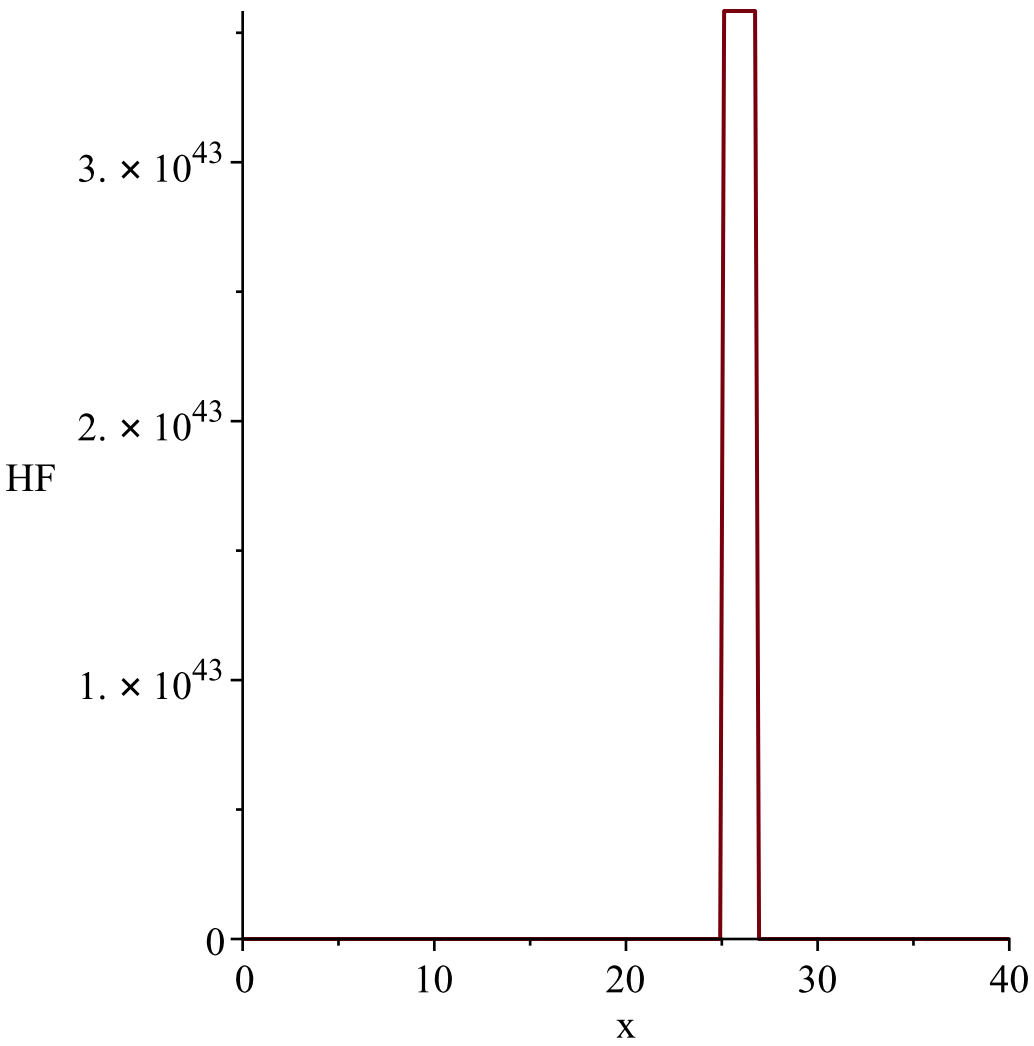
"h(x)", $\dfrac{4\,e^{2\,x - 2\,e^{x}}}{2\,e^{x - 2\,e^{x}} + e^{-2\,e^{x}}}$

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

$$mf := \int_{-\infty}^{\infty} 4\,x^{r\sim}\,e^{2\,x - 2\,e^{x}}\,dx$$

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


0.5
0.4
0.3
PDF
0.2
0.1
0
0
10
20
30
40
x




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

"i is", 7,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

"f(x)", $-4 \ln(x)\ x$

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

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

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

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

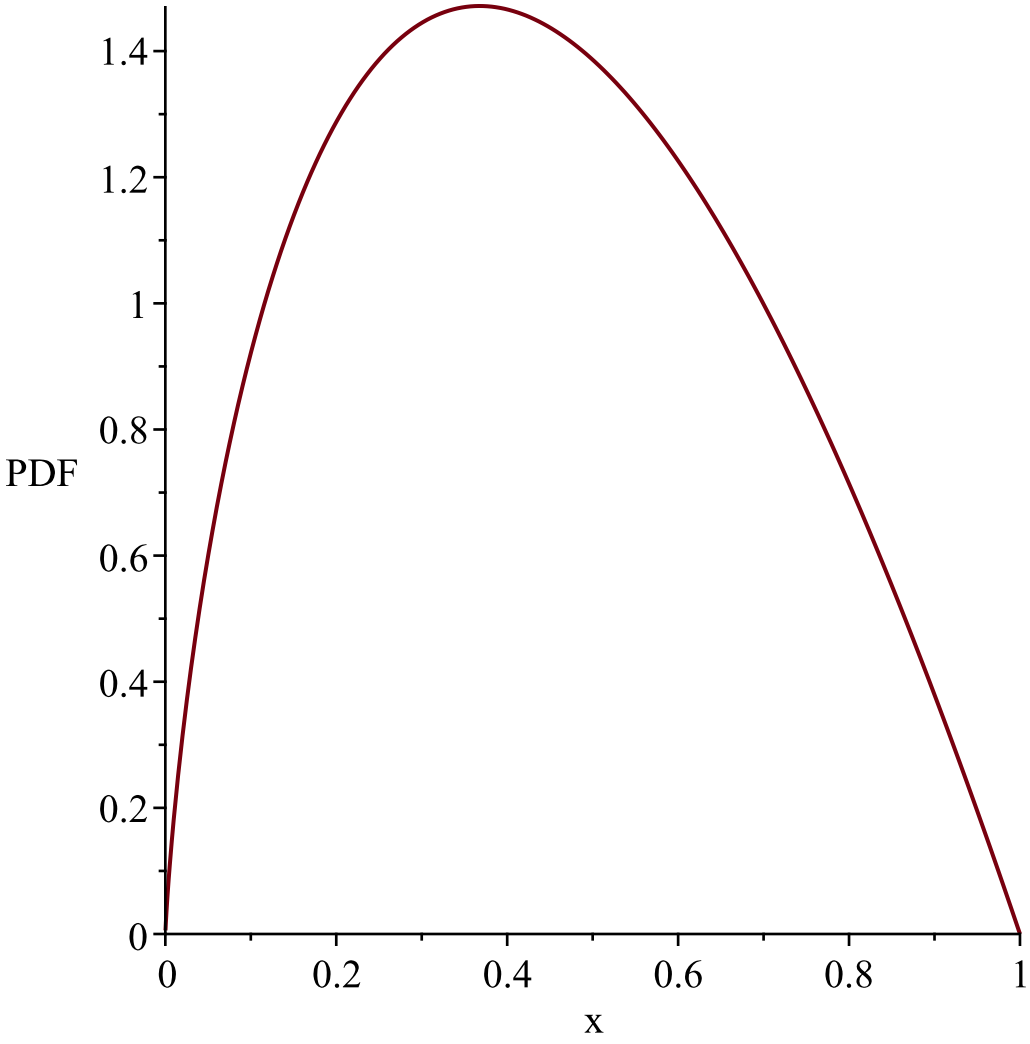
$$\text{"mean and variance"},\ \frac{4}{9},\ \frac{17}{324}$$

$$mf := \frac{4}{r\sim^2 + 4\,r\sim + 4}$$

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

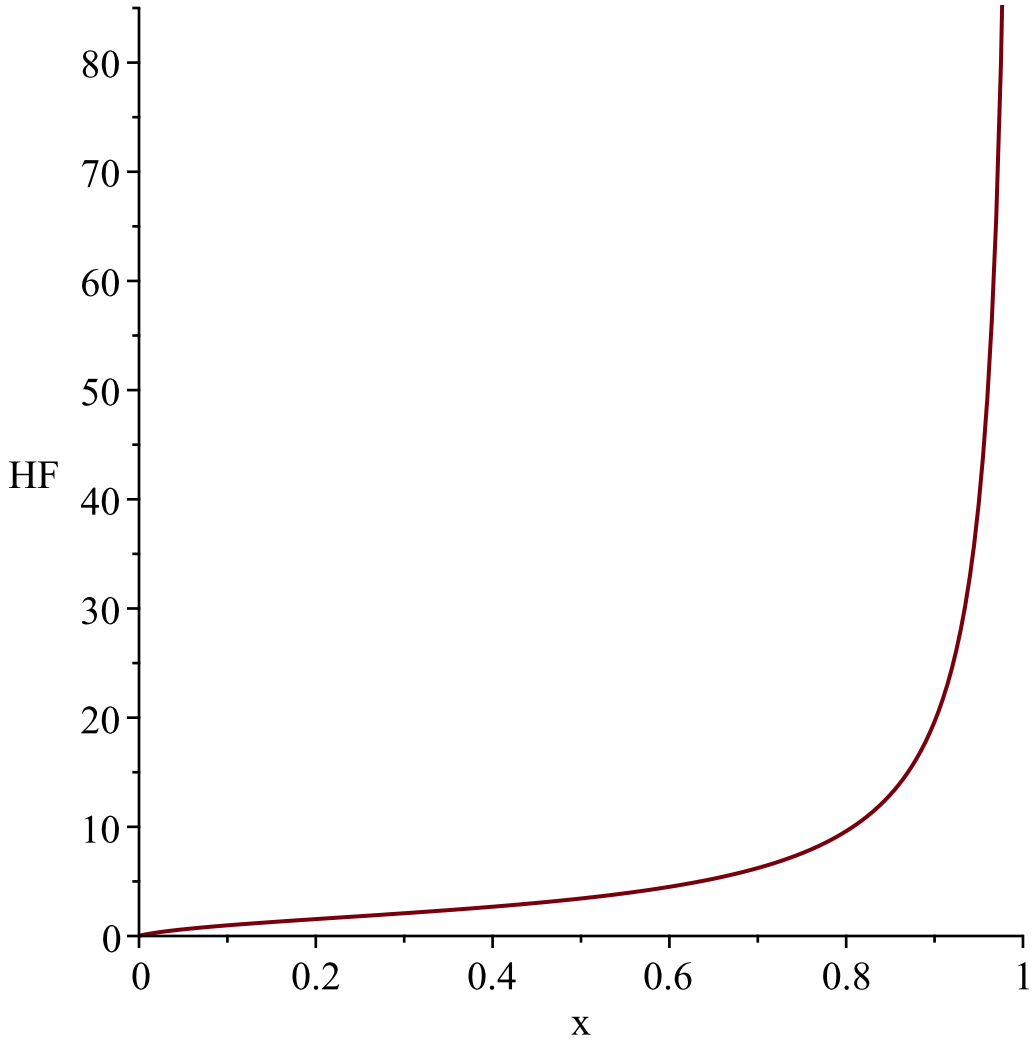
WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable*, 1

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,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

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

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

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

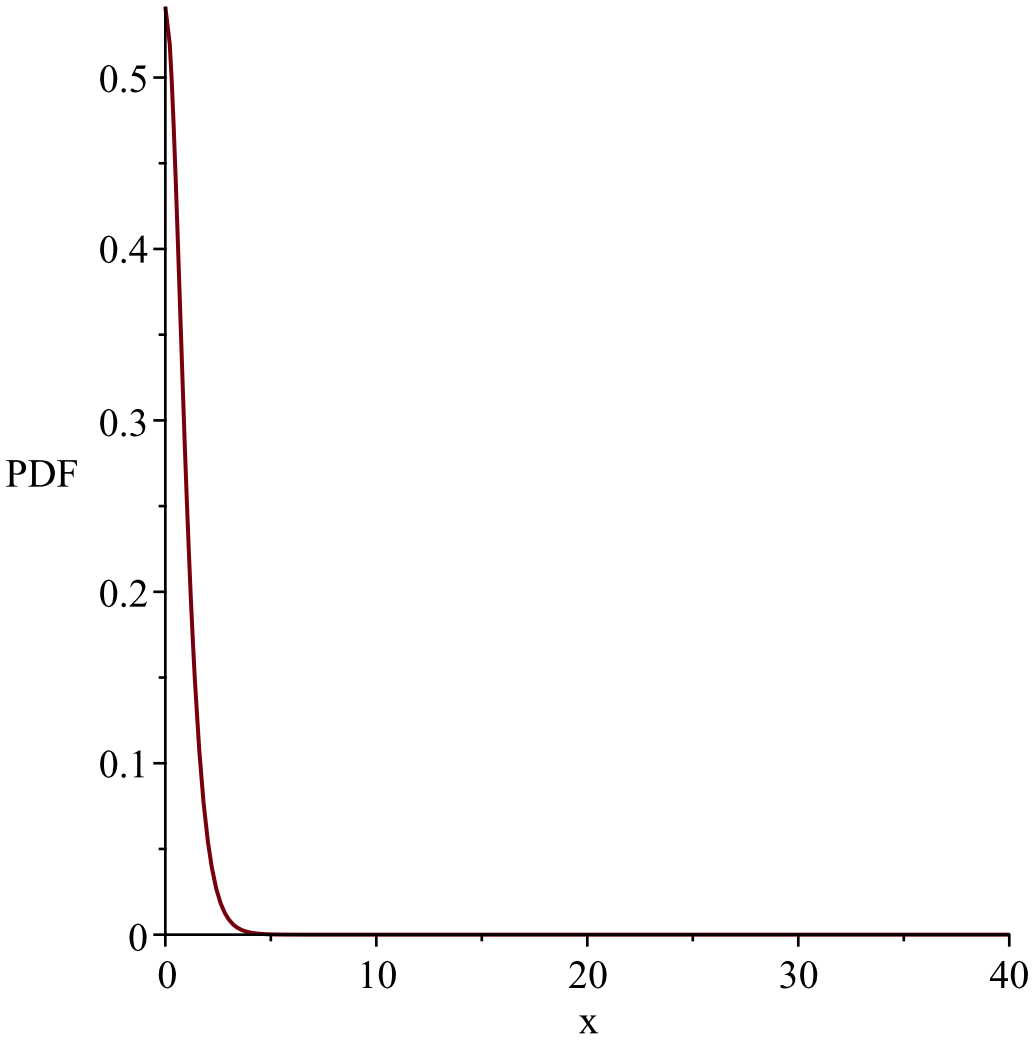
"S(x)", $-e^{-2\, e^{-x}} - 2\, e^{-2\, e^{-x} - x} + 1$

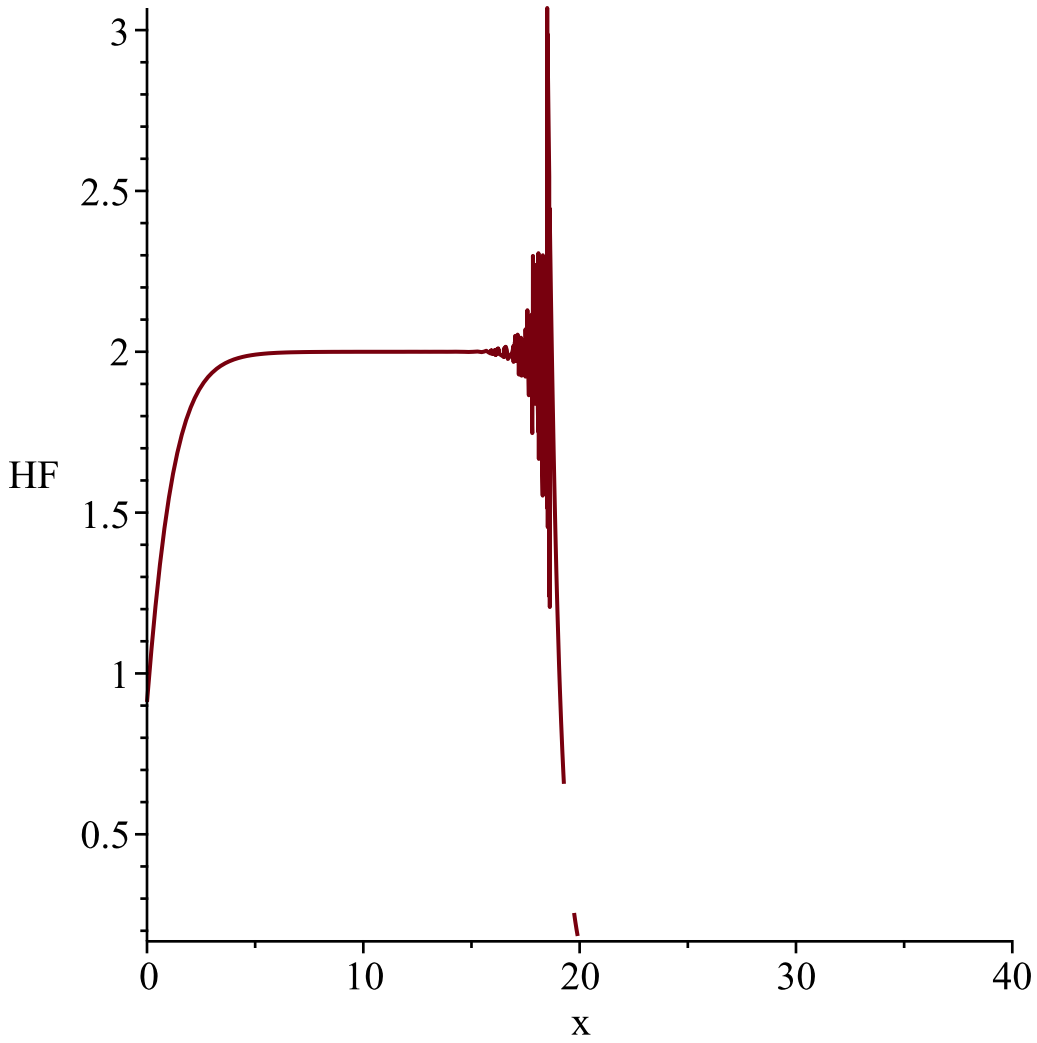
$$\text{"h(x)"},\ -\frac{4\,e^{-2x-2e^{-x}}}{e^{-2e^{-x}}+2\,e^{-2e^{-x}-x}-1}$$

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

$$mf := \int_{-\infty}^{\infty} 4\,x^{t\sim}\,e^{-2x-2e^{-x}}\,dx$$

$$\text{"MGF"},\ \int_{-\infty}^{\infty} 4\,e^{tx-2x-2e^{-x}}\,dx$$






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

"i is", 9,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

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

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

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

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

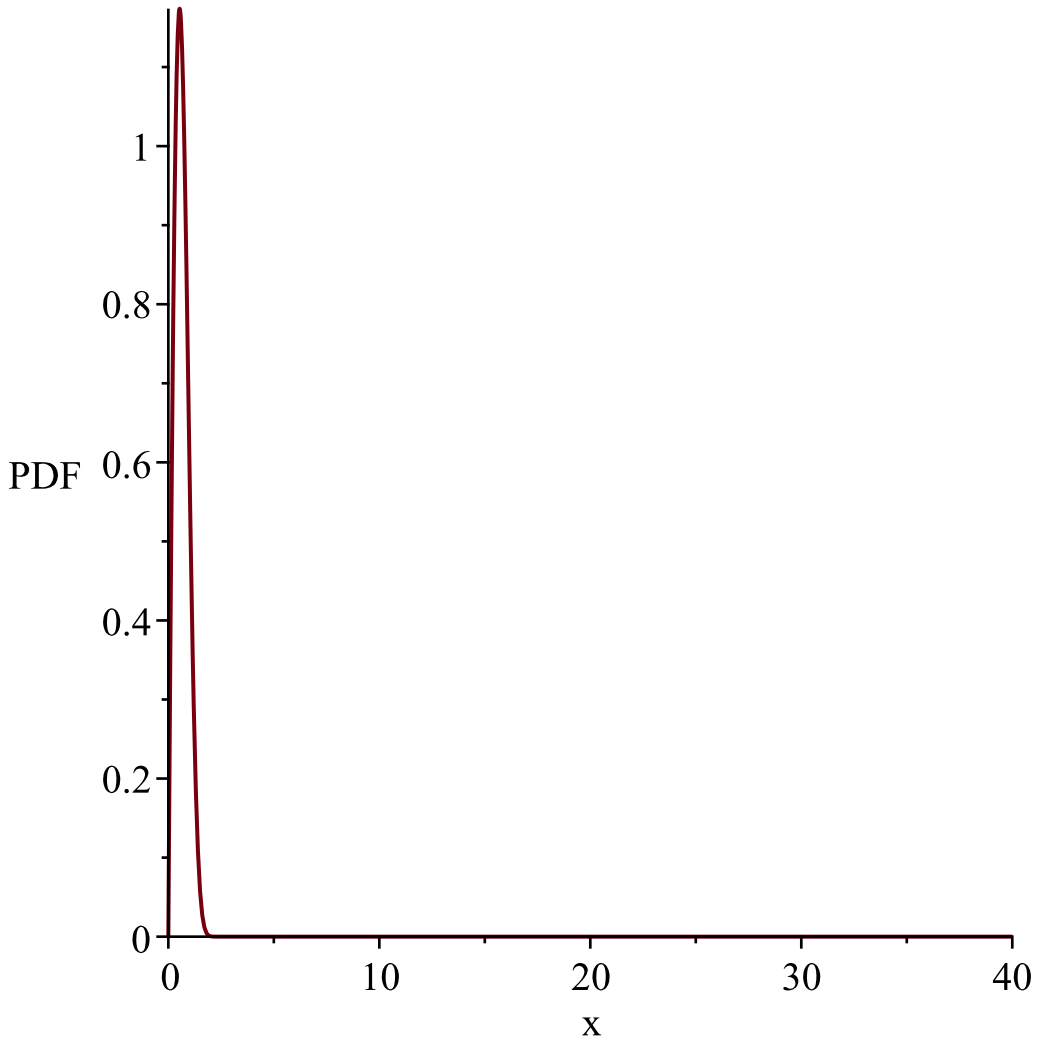
$$\text{"h(x)"},\ \frac{4\left(e^{x}-1\right)e^{-2e^{x}+2+x}}{2e^{-2e^{x}+2+x}-e^{2-2e^{x}}}$$

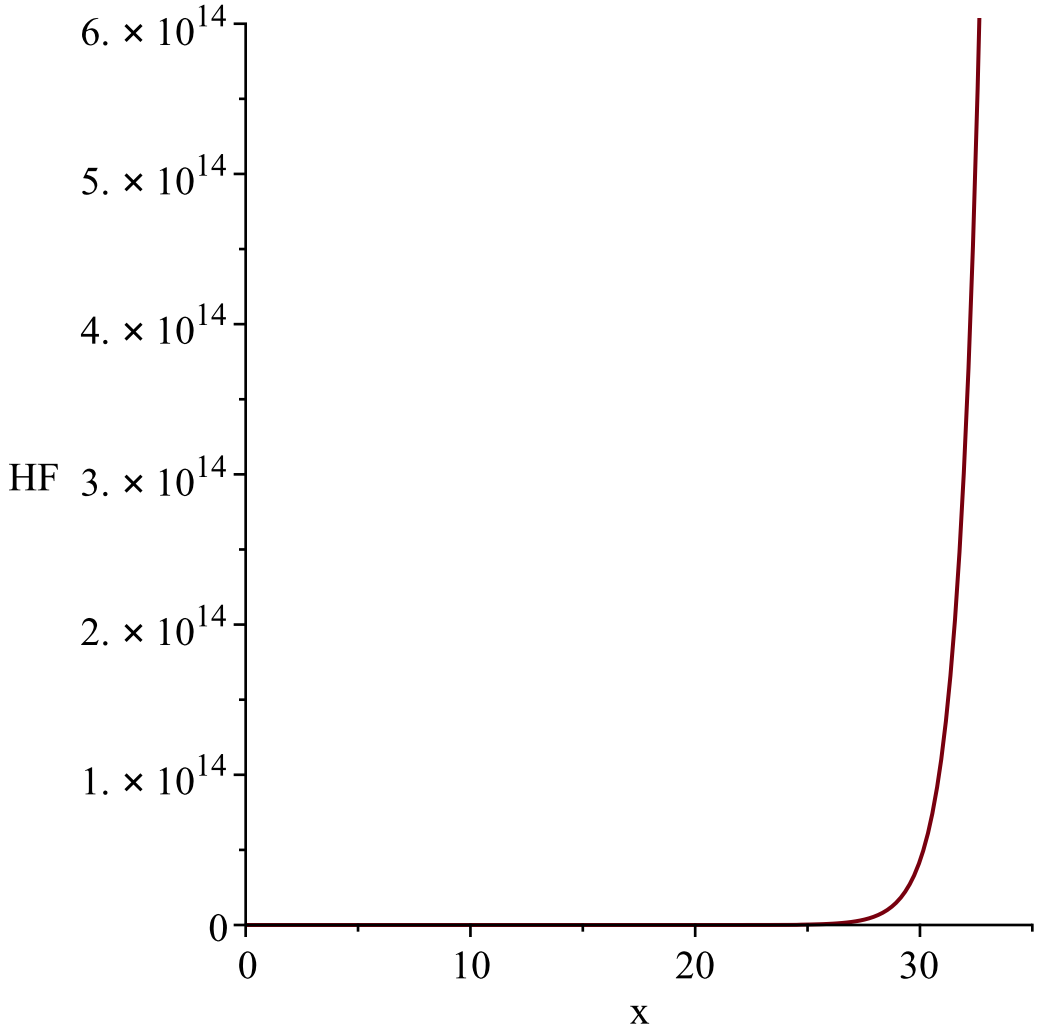
$$\text{"mean and variance"},\ \int_{0}^{\infty}4x\left(e^{x}-1\right)e^{-2e^{x}+2+x}\,dx,\ \int_{0}^{\infty}4x^{2}\left(e^{x}-1\right)e^{-2e^{x}+2+x}\,dx$$

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

$$mf:=\int_{0}^{\infty}4x^{r\sim}\left(e^{x}-1\right)e^{-2e^{x}+2+x}\,dx$$

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






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

"i is", 10,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

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

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

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

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

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

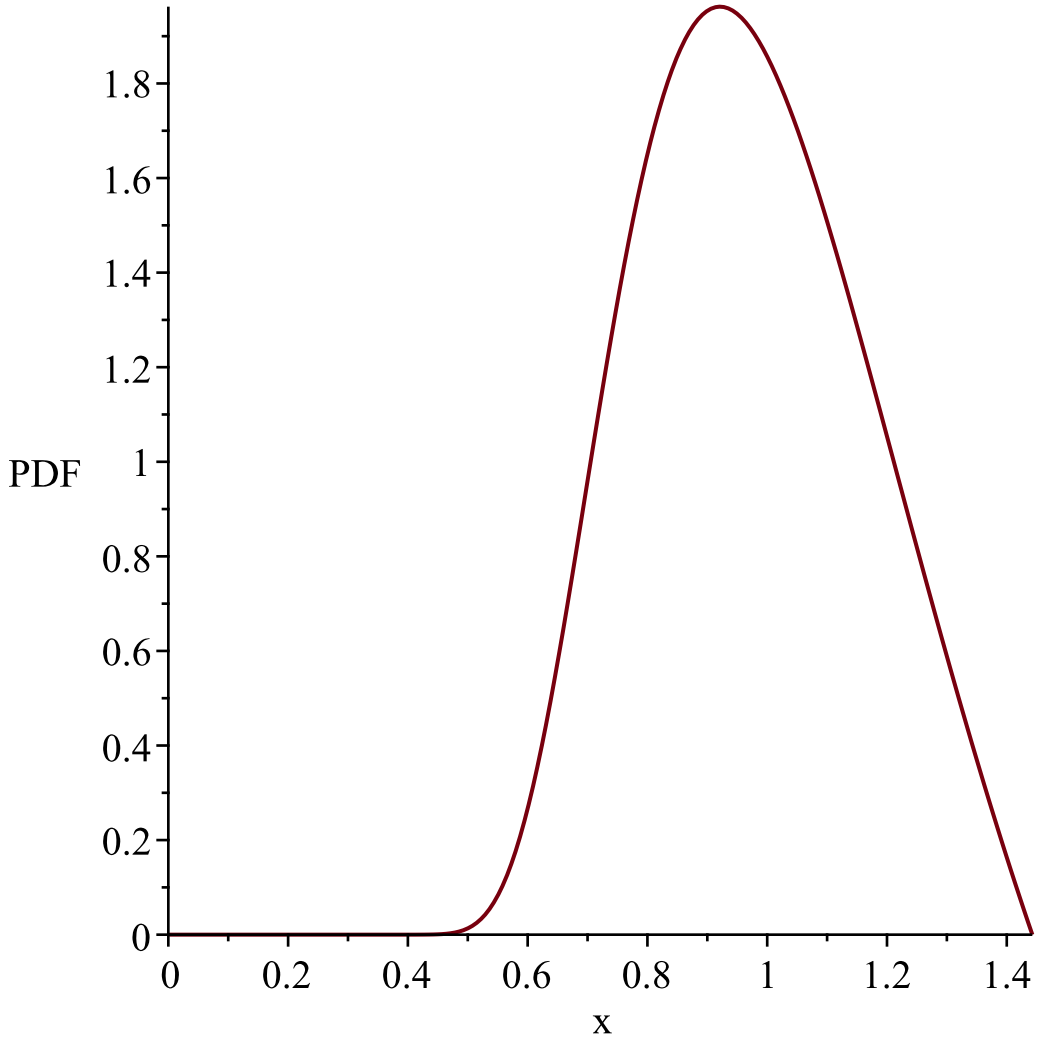
$$\text{"mean and variance"}, 4\left(\int_0^{\frac{1}{\ln(2)}}\frac{\left(e^{\frac{1}{x}}-2\right)e^{-\frac{2e^{\frac{1}{x}}x-4x-1}{x}}}{x}\,dx\right), 4\left(\int_0^{\frac{1}{\ln(2)}}\left(e^{\frac{1}{x}}-2\right)e^{-\frac{2e^{\frac{1}{x}}x-4x-1}{x}}\,dx\right)-16\left(\int_0^{\frac{1}{\ln(2)}}\frac{\left(e^{\frac{1}{x}}-2\right)e^{-\frac{2e^{\frac{1}{x}}x-4x-1}{x}}}{x}\,dx\right)^2$$

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

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

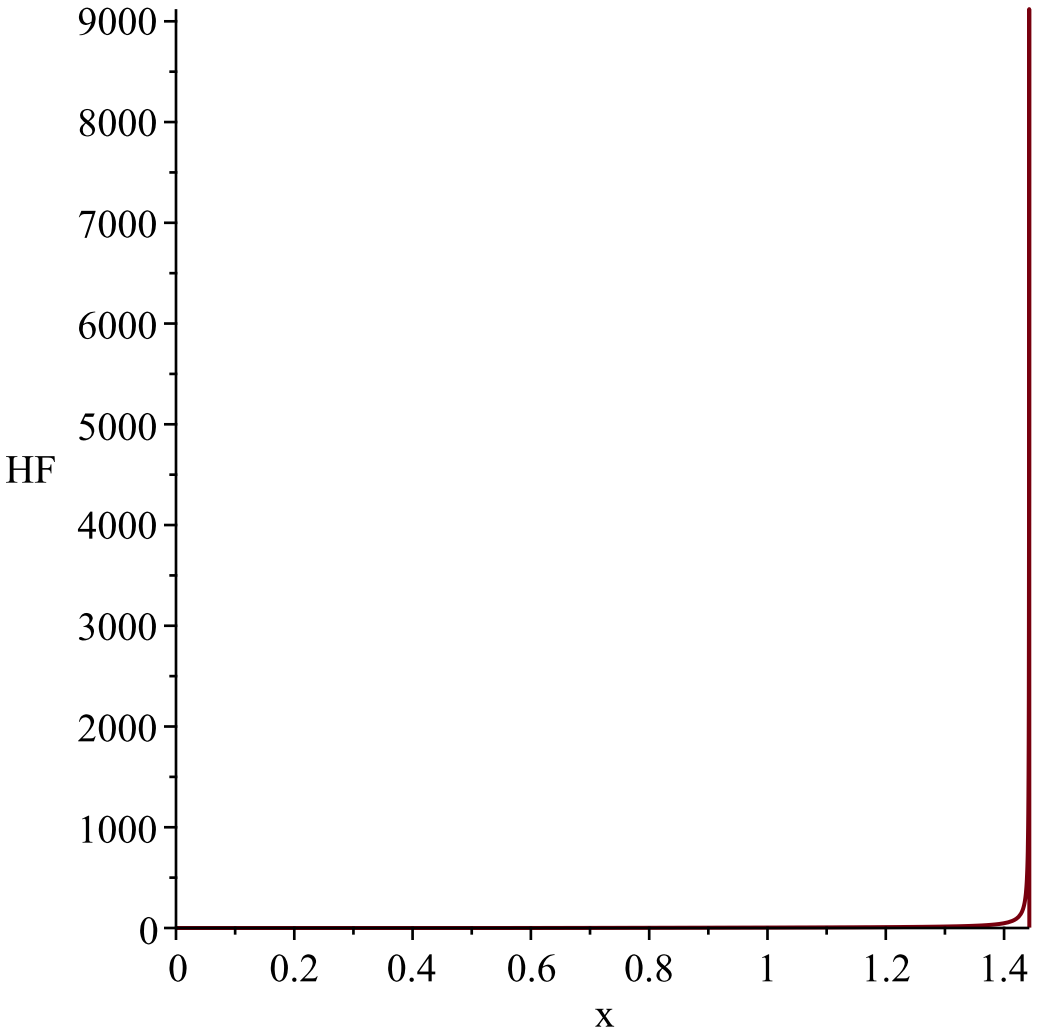
WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $\frac{1}{\ln(2)}$

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,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

"g(x)", $\tanh(x)$, "base", $4\,x\,e^{-2x}$, "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,s)", $\left[\left[s \to -e^{RootOf\left(-\ln\left(-e^{\_Z}+2\right)e^{\_Z}+\_Z e^{\_Z}+s e^{\_Z}-2e^{\_Z}+2\ln\left(-e^{\_Z}+2\right)+4\,\mathrm{arctanh}\left(e^{\_Z}-1\right)-2\_Z-2s+2\right)}+1\right], [0, 1], ["Continuous", "IDF"]\right]$

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

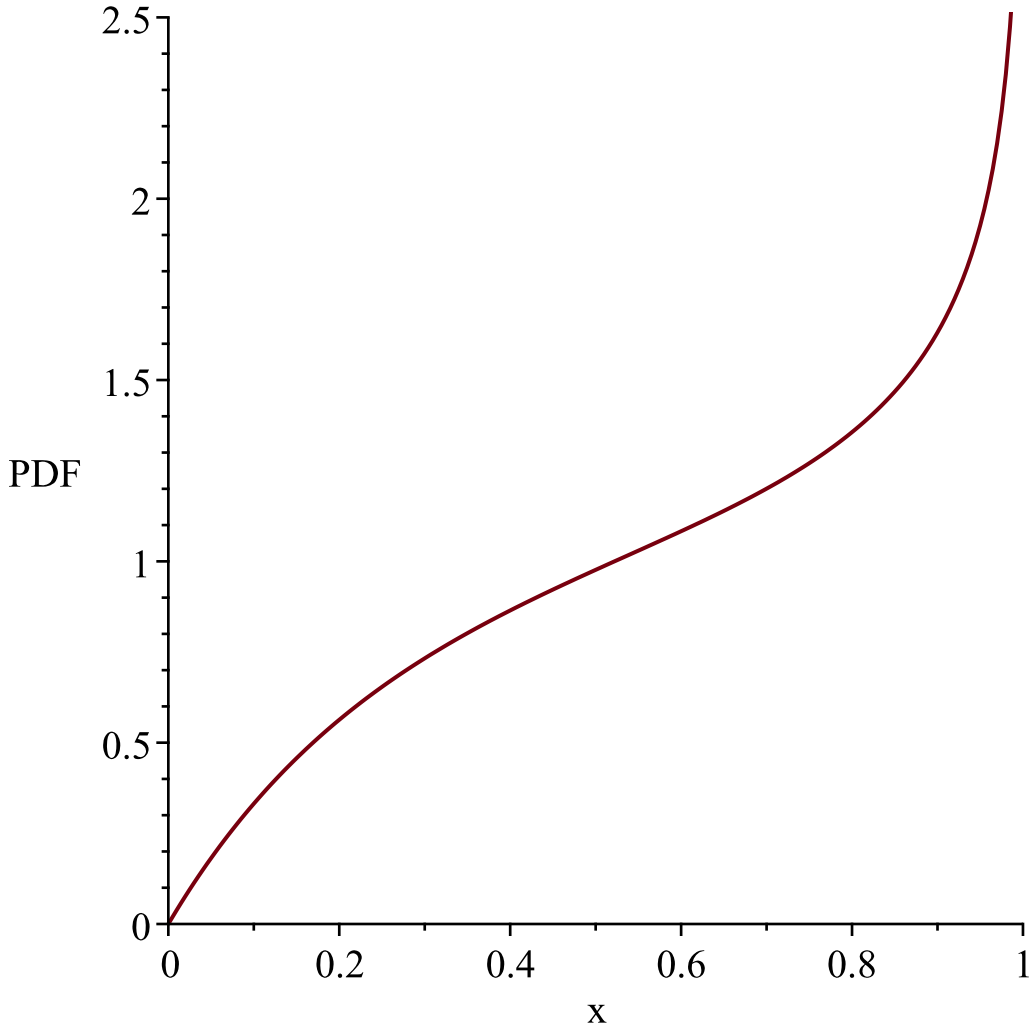
"h(x)", $\frac{4\,\mathrm{arctanh}(x)}{(x+1)\,(\ln(1-x)\,x-\ln(x+1)\,x+\ln(1-x)-\ln(x+1)+4\,\mathrm{arctanh}(x)-x+1)}$

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

$$mf := \int_0^1 \frac{4\,x^{\tilde{r}}\,\mathrm{arctanh}(x)}{(x+1)^2}\,dx$$

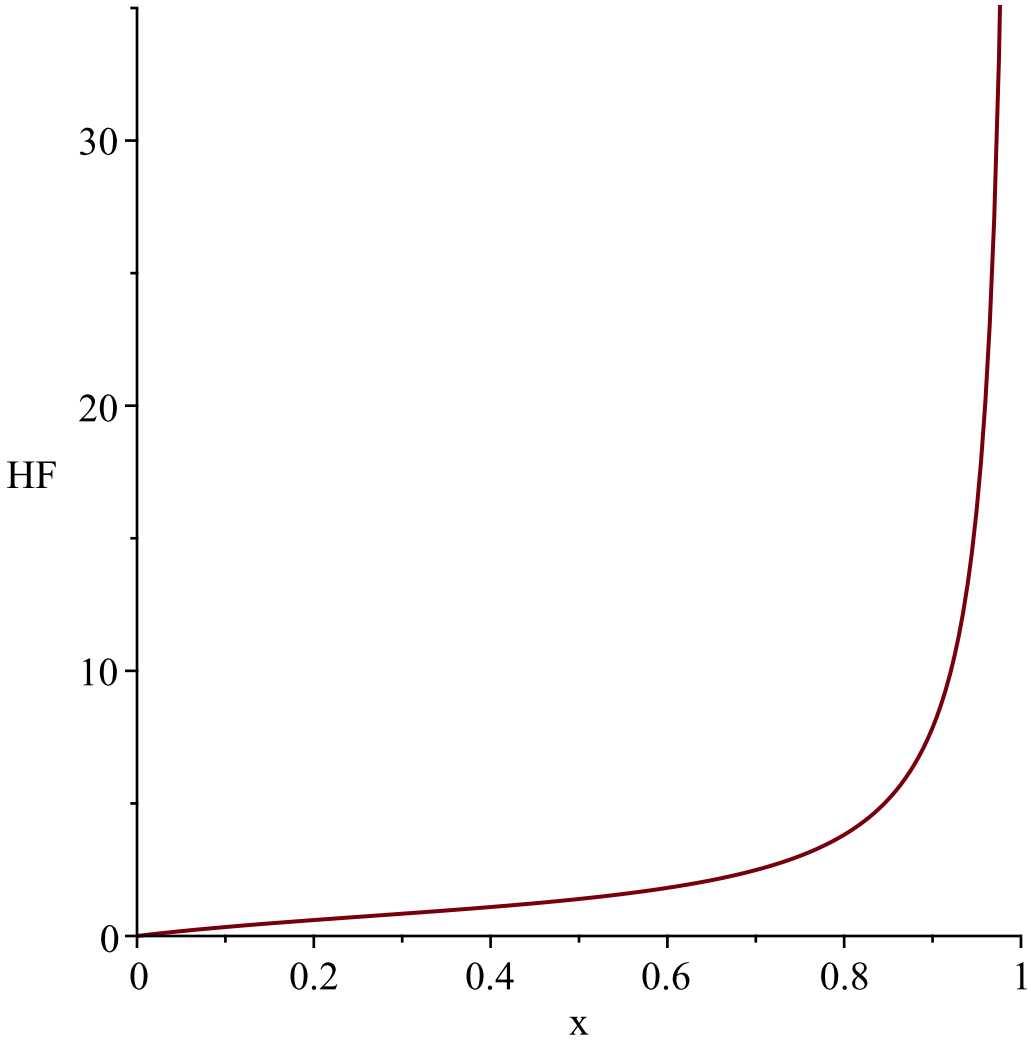
"MGF", $4\left(\int_0^1 \frac{e^{t\,x}\,\mathrm{arctanh}(x)}{(x+1)^2}\,dx\right)$

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)"

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

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

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

$\left.\left["\text{Continuous}", "\text{IDF}"\right]\right]$

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

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

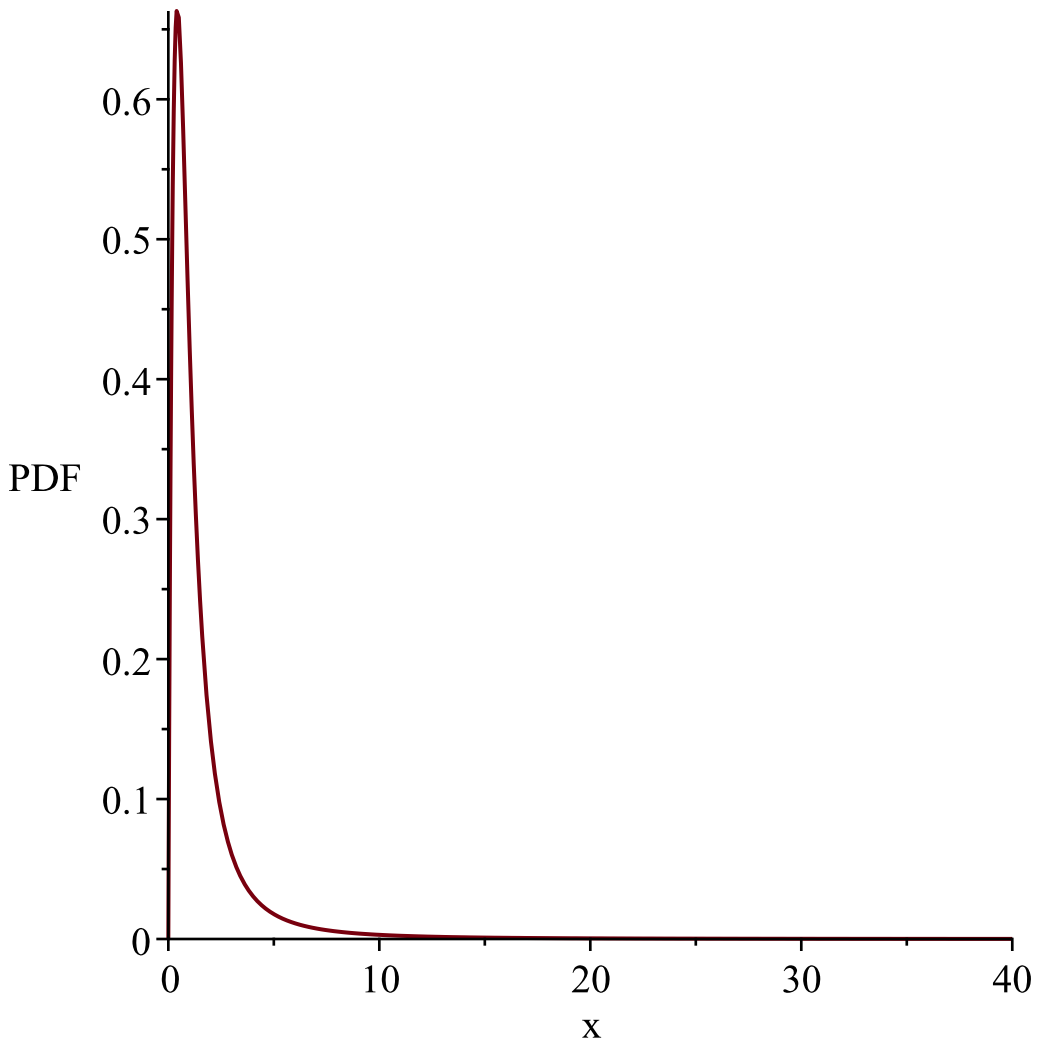
"h(x)", $(4\,\text{arcsinh}(x))\Big/\left(\left(x+\sqrt{x^2+1}\right)^2\sqrt{x^2+1}\ \left(1-4x^2\ln\left(-x+\sqrt{x^2+1}\right)+2x^2\right.\right.$

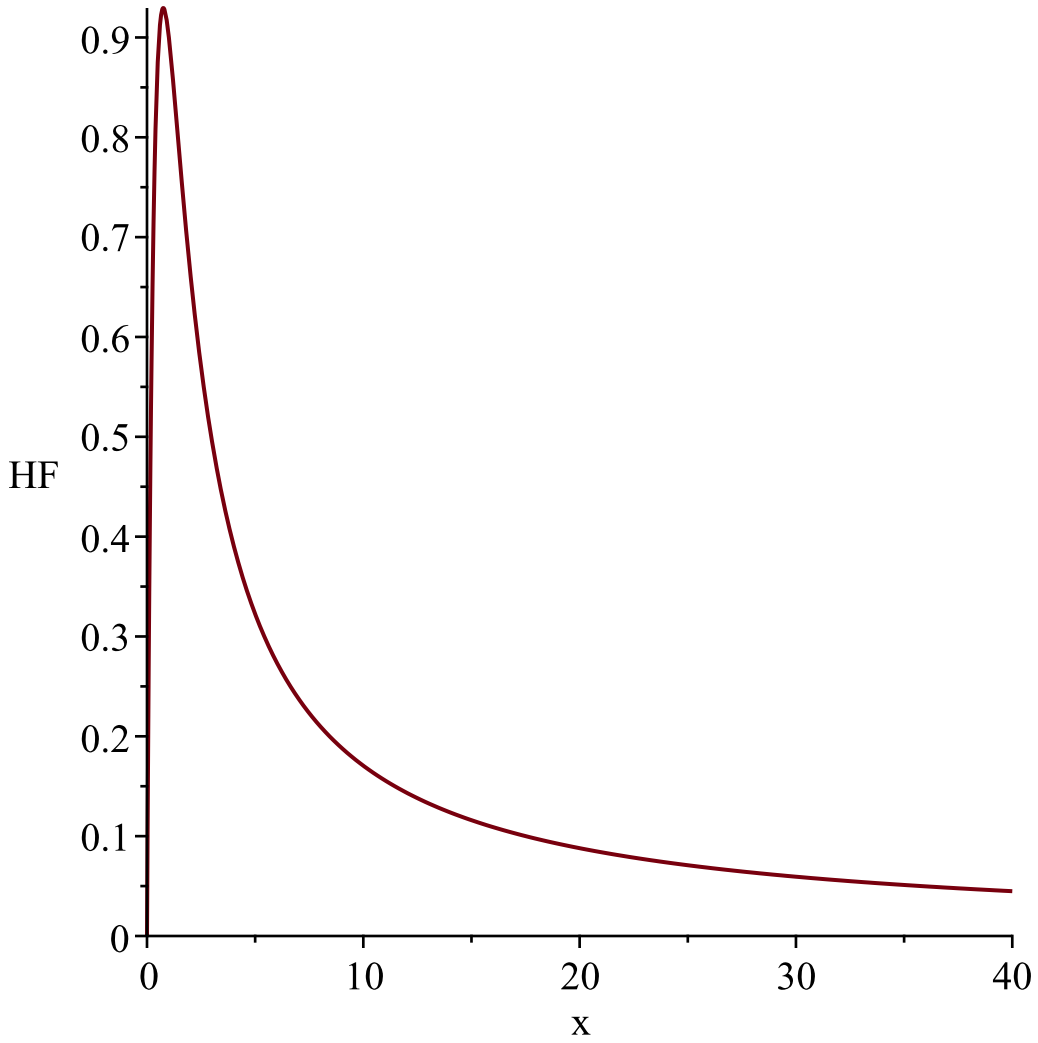
$\left.\left.+4x\sqrt{x^2+1}\ \ln\left(-x+\sqrt{x^2+1}\right)-2x\sqrt{x^2+1}\ -2\ln\left(-x+\sqrt{x^2+1}\right)\right)\right)$

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

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

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


PDF
0.6
0.5
0.4
0.3
0.2
0.1
0
0
10
20
30
40
x




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

"i is", 13,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

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

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

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

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

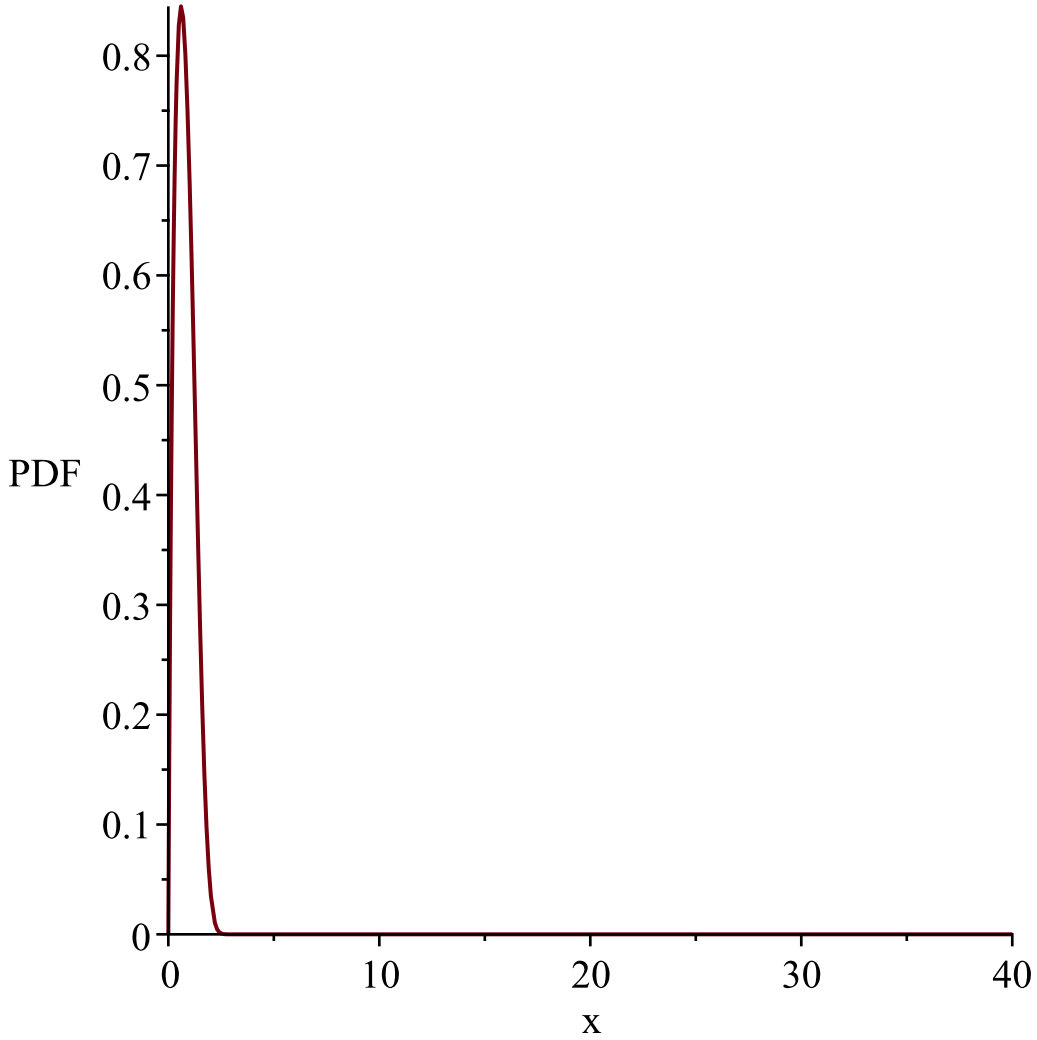
$$\text{"h(x)"},\ -\frac{4\sinh(x)\,e^{-2\sinh(x)}\cosh(x)}{e^{-\left(e^{2x}+xe^{x}-1\right)e^{-x}}-e^{\left(-e^{2x}+xe^{x}+1\right)e^{-x}}-e^{-\left(e^{2x}-1\right)e^{-x}}}$$

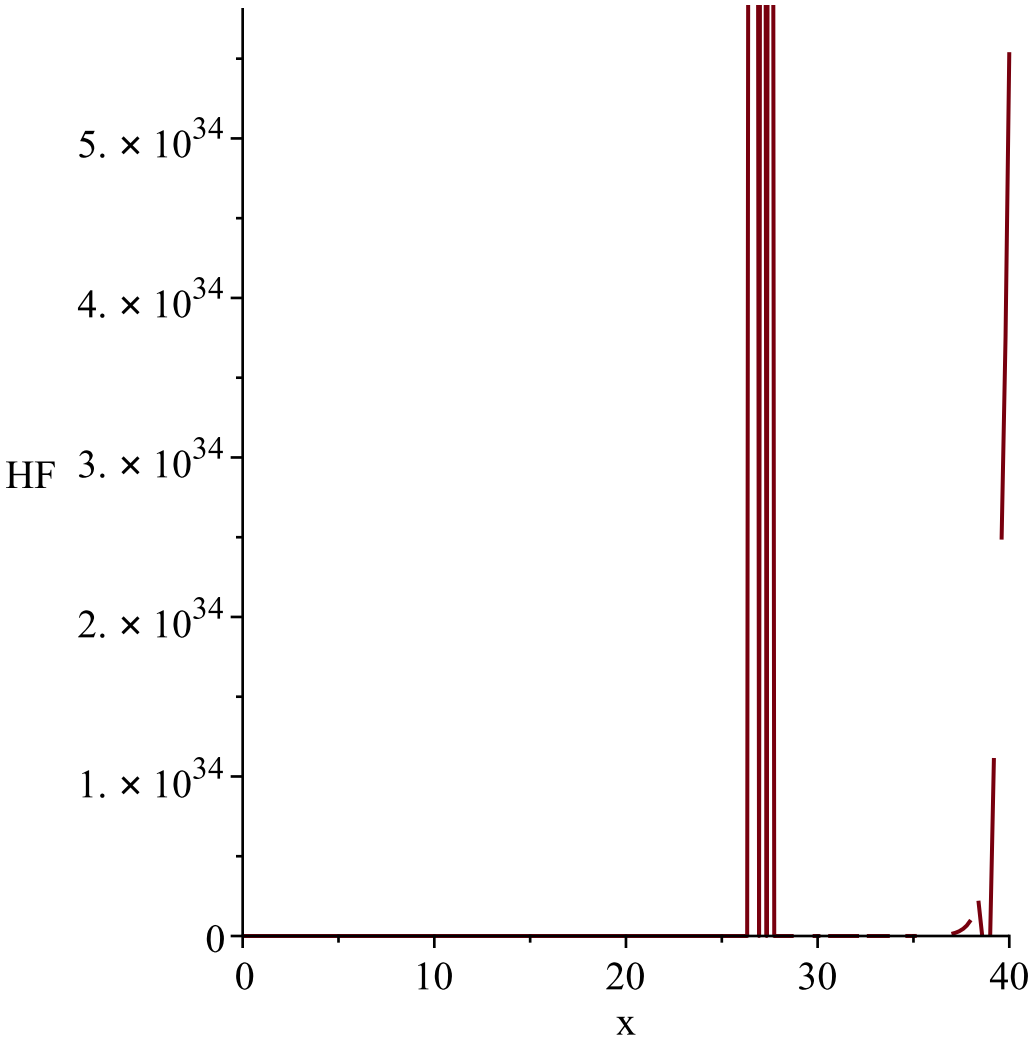
$$\text{"mean and variance"},\int_{0}^{\infty}2x\,e^{-2\sinh(x)}\sinh(2x)\,dx,\int_{0}^{\infty}2x^{2}\,e^{-2\sinh(x)}\sinh(2x)\,dx$$

$$-\left(\int_{0}^{\infty}2x\,e^{-2\sinh(x)}\sinh(2x)\,dx\right)^{2}$$

$$mf:=\int_{0}^{\infty}4x^{r\sim}\sinh(x)\,e^{-2\sinh(x)}\cosh(x)\,dx$$

$$\text{"MGF"},\int_{0}^{\infty}2\,e^{tx-2\sinh(x)}\sinh(2x)\,dx$$






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

"i is", 14,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

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

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

"IDF(x) did not work"

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

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

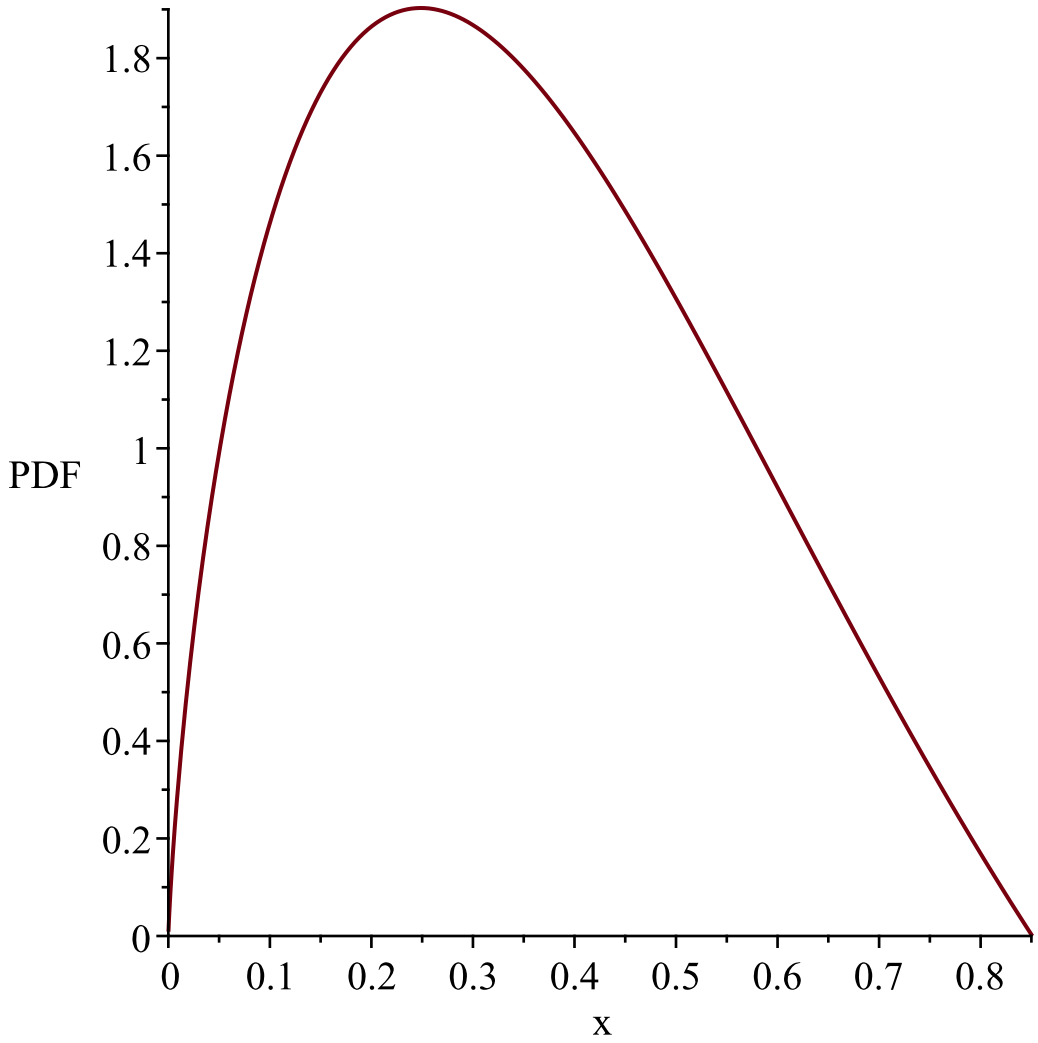
$$\text{"mean and variance"},\ 4\left(\int_0^{\frac{2e}{e^2-1}} \frac{(-1+\operatorname{arccsch}(x))\,e^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}}\,dx\right),\ 4\left(\int_0^{\frac{2e}{e^2-1}} \frac{x\,(-1+\operatorname{arccsch}(x))\,e^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}}\,dx\right)-16\left(\int_0^{\frac{2e}{e^2-1}}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

$$mf := \int_0^{-\frac{2}{-e+e^{-1}}} \frac{4\,x^{r\sim}\,(-1+\operatorname{arccsch}(x))\,e^{2-2\operatorname{arccsch}(x)}}{\sqrt{x^2+1}\ |x|}\,dx$$

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

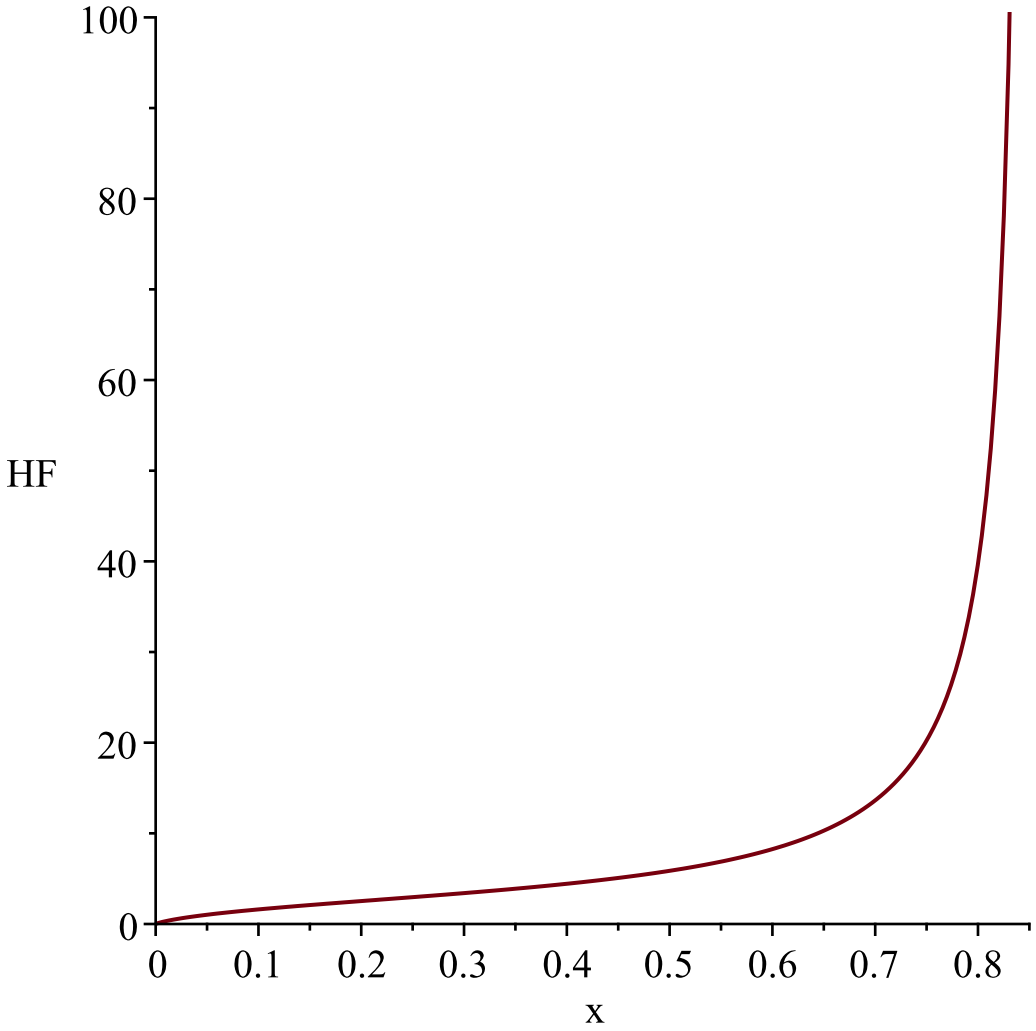
WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $-\frac{2}{-e+e^{-1}}$

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,

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

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

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

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

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

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

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

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

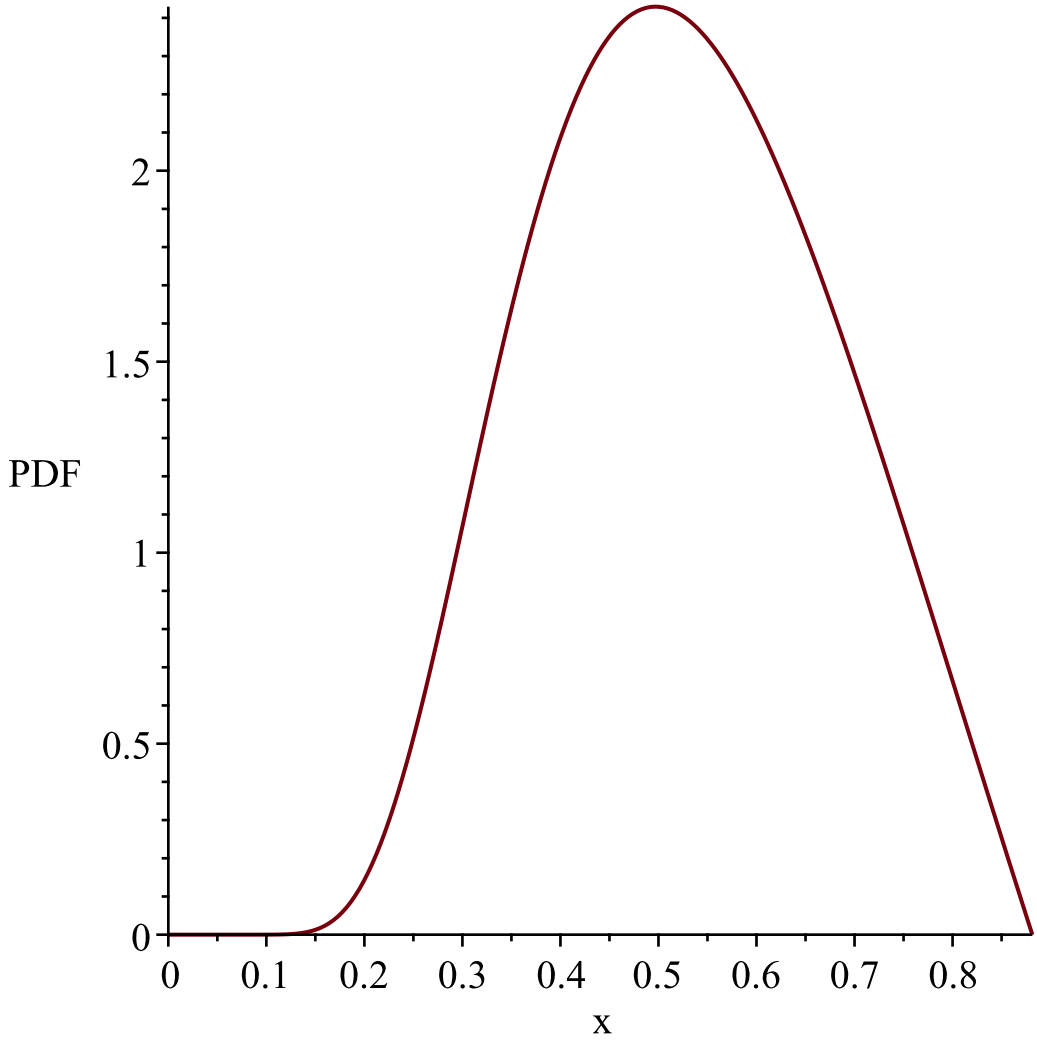
$$\text{"mean and variance"},\ -4\left(\int_0^{\ln(1+\sqrt{2})}\frac{x\,(\sinh(x)-1)\,e^{\frac{2\,(\sinh(x)-1)}{\sinh(x)}}\cosh(x)}{\sinh(x)^3}\,dx\right),\ -4\left(\int_0^{\ln(1+\sqrt{2})}\frac{x^2\,(\sinh(x)-1)\,e^{\frac{2\,(\sinh(x)-1)}{\sinh(x)}}\cosh(x)}{\sinh(x)^3}\,dx\right)-16\left(\int_0^{\ln(1+\sqrt{2})}\frac{x\,(\sinh(x)-1)\,e^{\frac{2\,(\sinh(x)-1)}{\sinh(x)}}\cosh(x)}{\sinh(x)^3}\,dx\right)^2$$

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

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

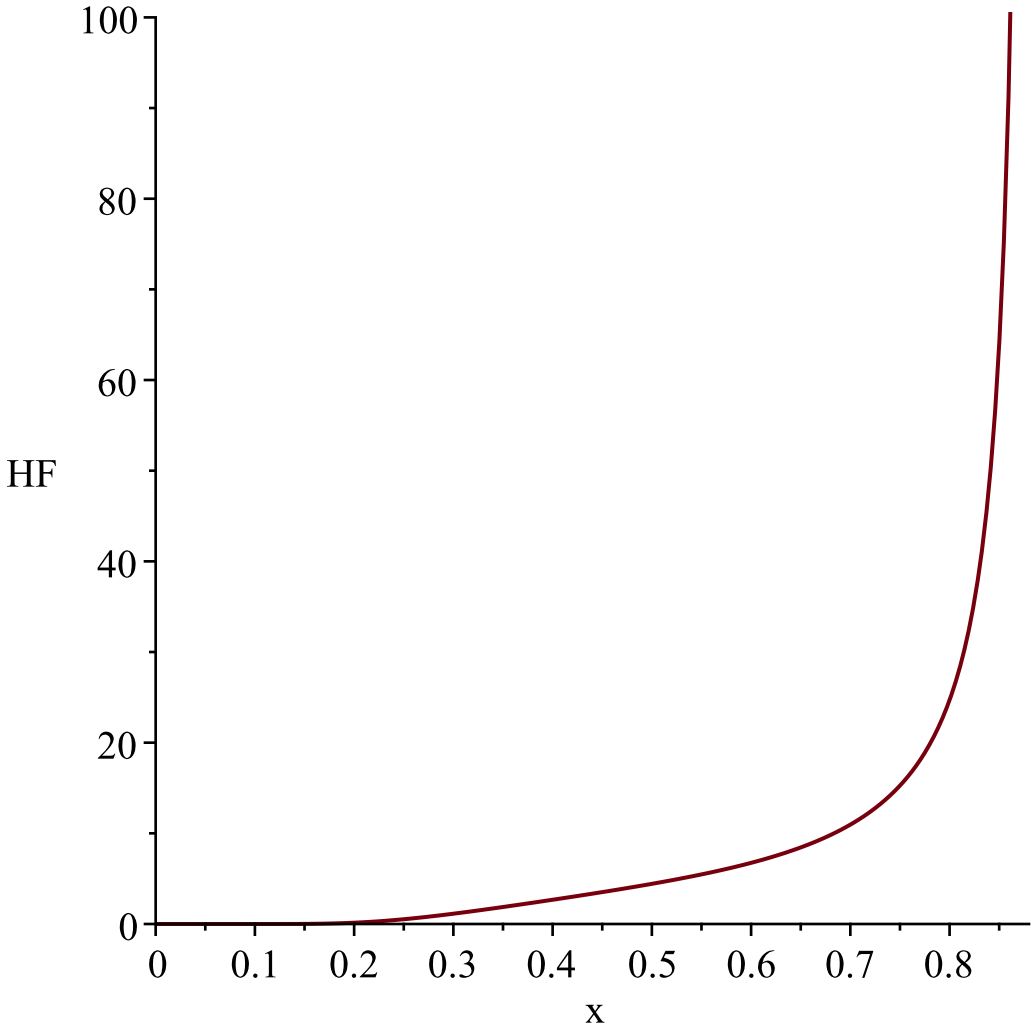
WARNING(PlotDist): High value provided by user, 40 *is greater than maximum support value of the random variable,* $\ln(1+\sqrt{2})$

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,

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

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

$$l := 0$$

$$u := \infty$$

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

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

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

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

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

$$\text{"IDF(x) did not work"}$$

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

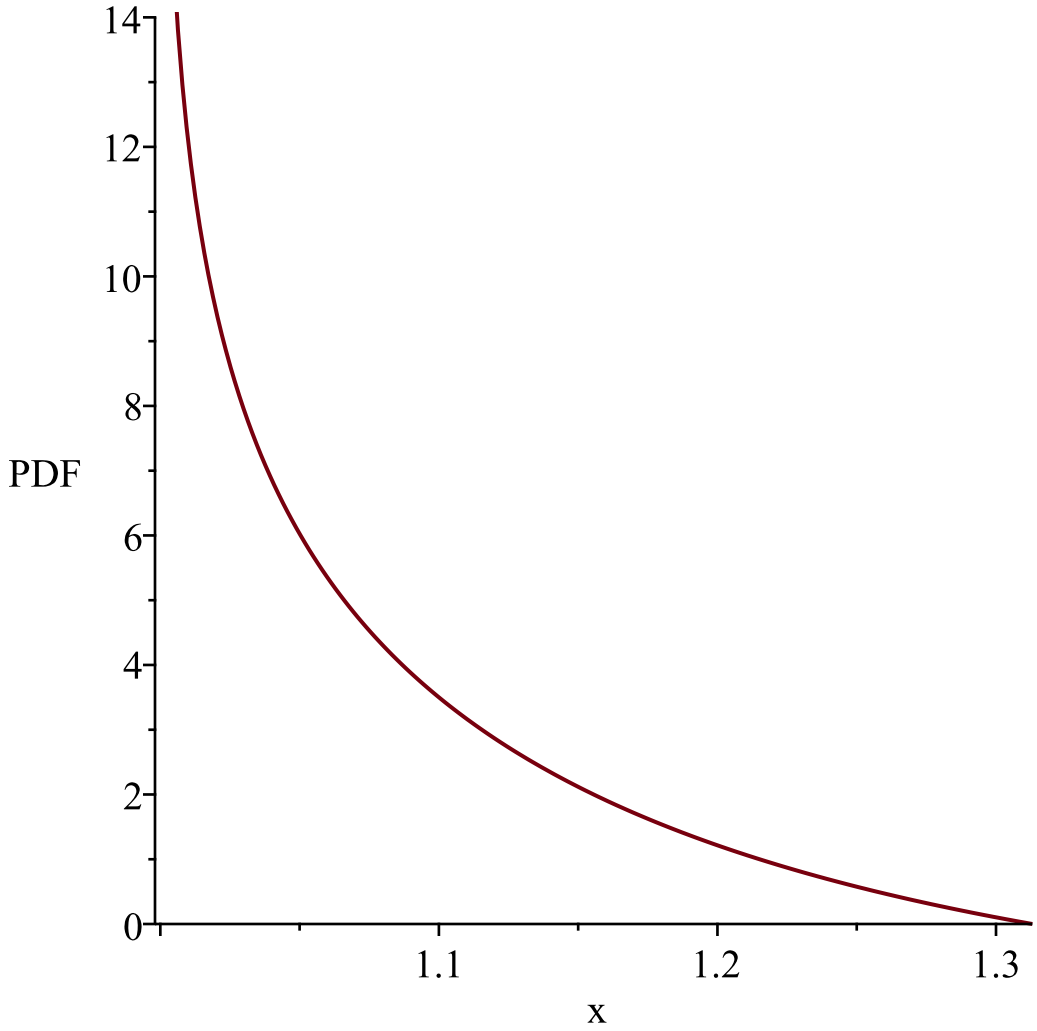
$$\text{"h(x)"},\ -\frac{4\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right)e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{(x^2-1)\left(-1+4\left(\int_1^x \frac{\left(-1+\operatorname{arctanh}\left(\frac{1}{t}\right)\right)e^{2-2\operatorname{arctanh}\left(\frac{1}{t}\right)}}{t^2-1}\,dt\right)\right)}$$

$$\text{"mean and variance"},\ 4\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right)e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx\right),\ 4\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x^2\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right)e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx\right)-16\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right)e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx\right)^2$$

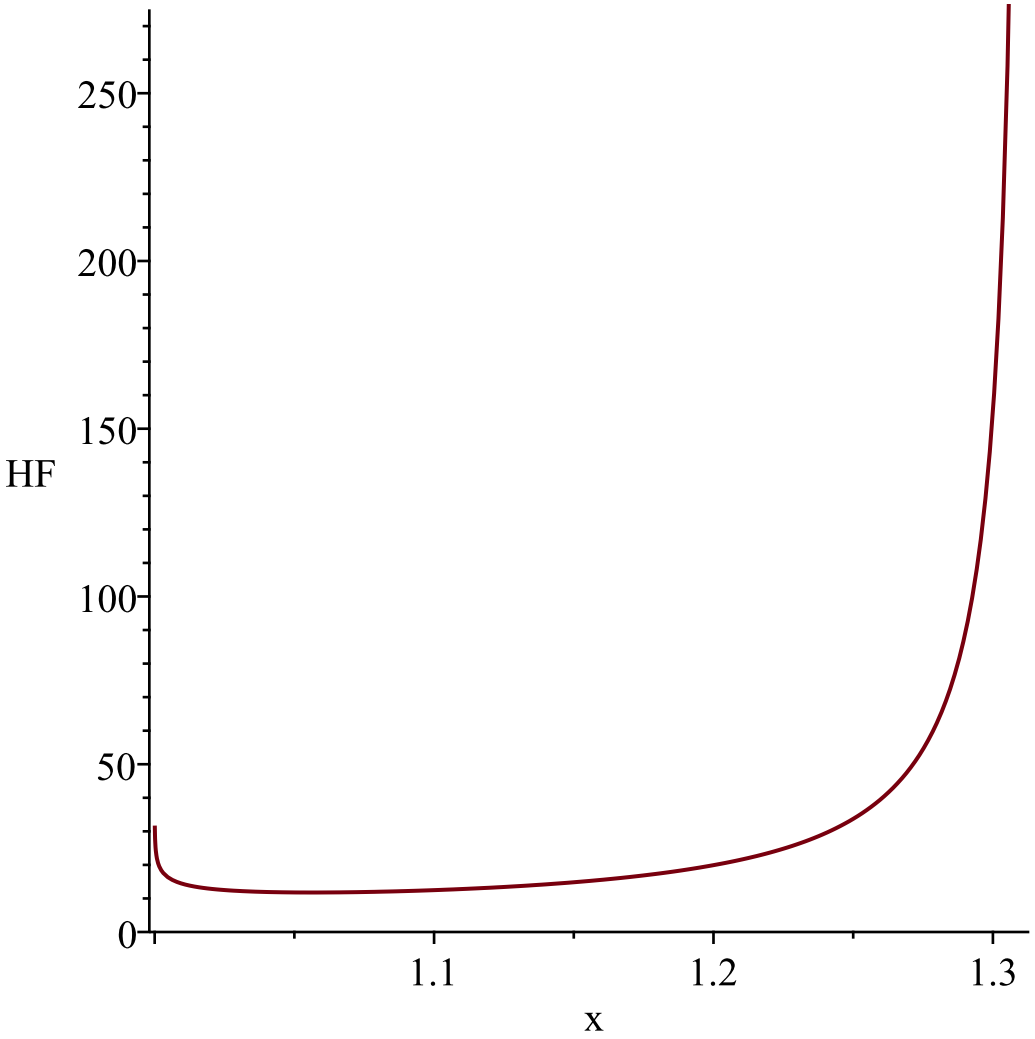
$$mf := \int_1^{\frac{e+e^{-1}}{e-e^{-1}}} \frac{4\,x^{r\sim}\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right)e^{2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx$$

$$\text{"MGF"}, 4\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{\left(-1+\operatorname{arctanh}\left(\frac{1}{x}\right)\right)e^{tx+2-2\operatorname{arctanh}\left(\frac{1}{x}\right)}}{x^2-1}\,dx\right)$$

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,
    " ----------------------------------------------------------------------------------------------------
    ----------"
```

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

$$l := 0$$

$$u := \infty$$

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

"PDF"]]

"l and u", 0, ∞

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

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

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

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

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

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

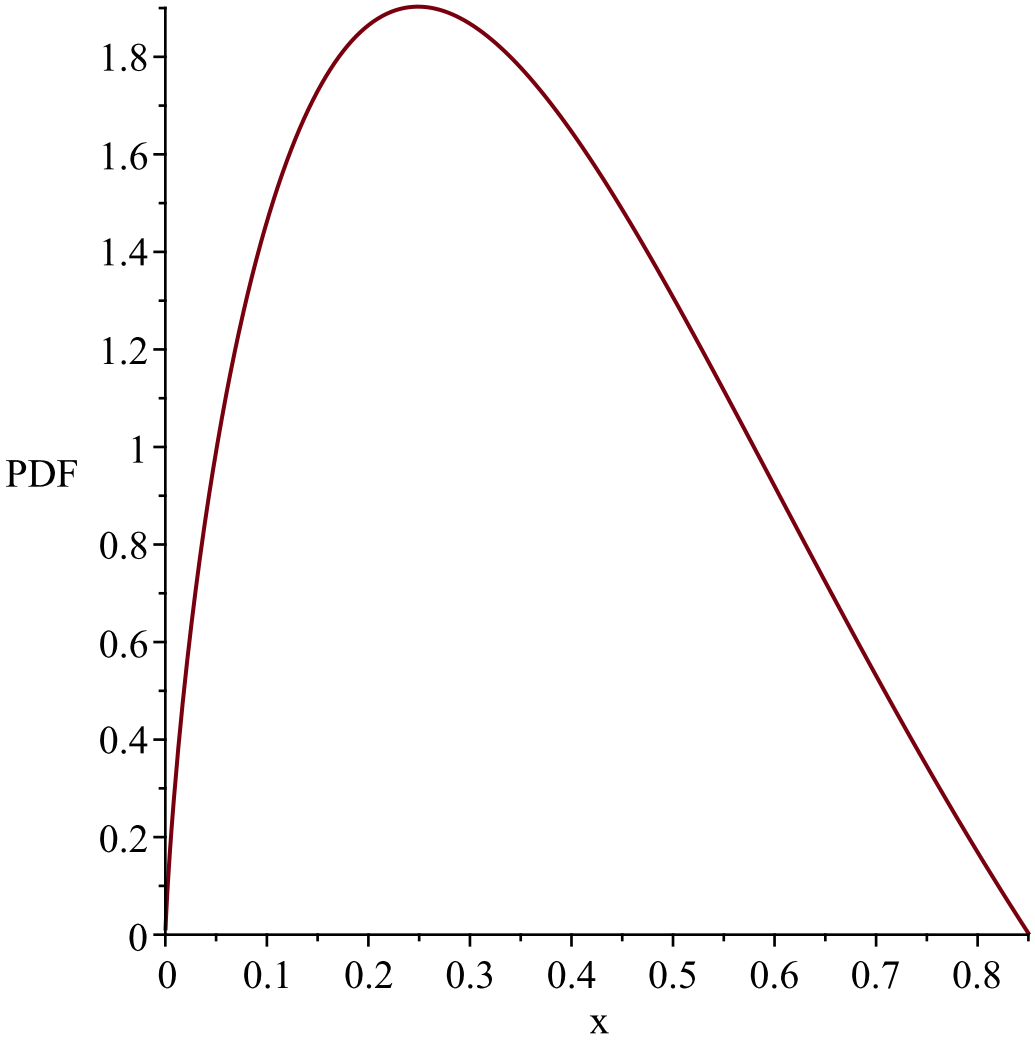
$$\text{"mean and variance"}, 4\left(\int_0^{\frac{2e}{e^2-1}}\frac{\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right)e^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1}}\,dx\right), 4\left(\int_0^{\frac{2e}{e^2-1}}\frac{x\left(-1+\operatorname{arcsinh}\left(\frac{1}{x}\right)\right)e^{2-2\operatorname{arcsinh}\left(\frac{1}{x}\right)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

$$mf := \int_0^{\frac{2}{e - e^{-1}}} \frac{4\, x^{t\sim} \left(-1 + \operatorname{arcsinh}\left(\frac{1}{x}\right)\right) e^{2 - 2\operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2 + 1}\ |x|}\, dx$$

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

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

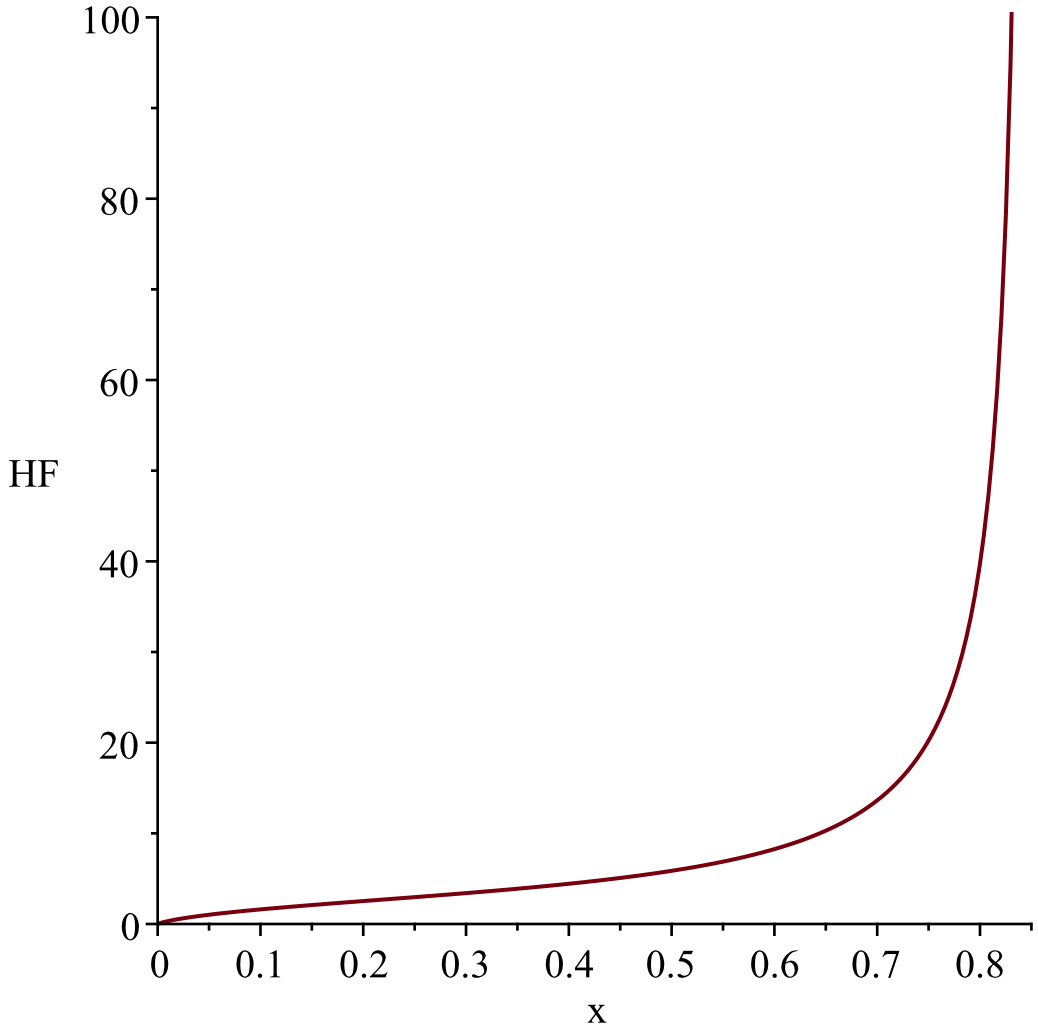
Resetting high to RV's maximum support value



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 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,

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

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

$$l := 0$$

$$u := \infty$$

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

$$\left.["Continuous", "PDF"]\right]$$

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

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

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

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

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

$$\left.["Continuous", "IDF"]\right]$$

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

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

Warning, computation interrupted

>