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filename := "C:/LatexOutput/FRV.tex"

$$\frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}$$

"i is", 1,
" -----
-----
"l and u", 0,  $\infty$ 
Temp := 
$$\left[ y \sim \rightarrow \frac{90 \sqrt{3}}{y^{1/4} (3 \sqrt{y} + 4)^{7/2}}, [0, \infty], ["Continuous", "PDF"] \right]$$

"IDF(x)", 
$$\left[ s \rightarrow RootOf((243 s^2 - 243) Z^10 + (1620 s^2 - 1620) Z^8 + (4320 s^2 - 2700) Z^6 + 5760 s^2 Z^4 + 3840 s^2 Z^2 + 1024 s^2)^4\right], [0, 1], ["Continuous", "IDF"]]$$

"S(x)",

$$-\frac{9 x^{5/4} \sqrt{3} - 9 \sqrt{3 \sqrt{x} + 4} x + 30 x^{3/4} \sqrt{3} - 24 \sqrt{3 \sqrt{x} + 4} \sqrt{x} - 16 \sqrt{3 \sqrt{x} + 4}}{(3 \sqrt{x} + 4)^{5/2}}$$

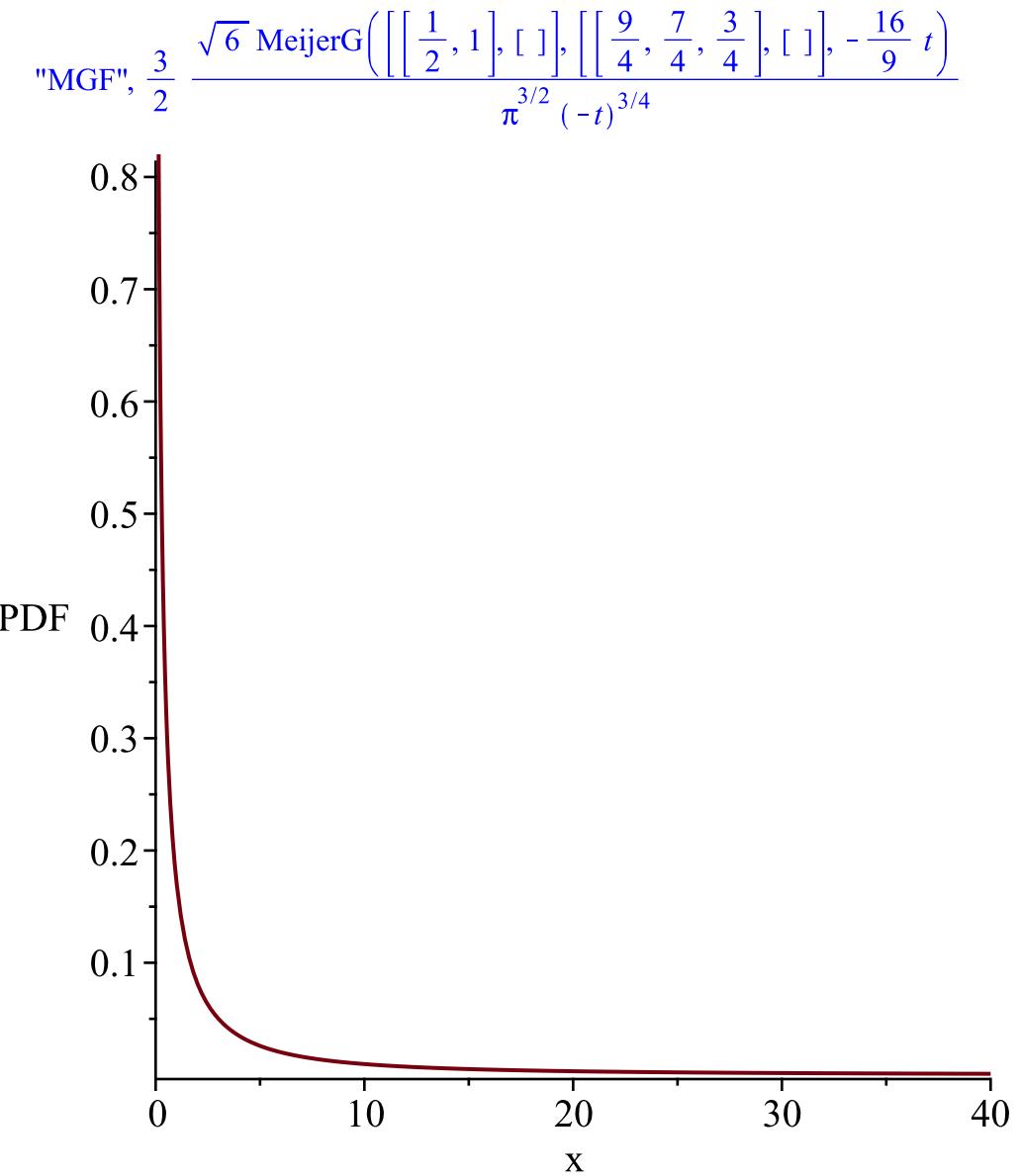
"h(x)", 
$$-\left(90 \sqrt{3}\right) / \left(x^{1/4} (3 \sqrt{x} + 4) \left(9 x^{5/4} \sqrt{3} - 9 \sqrt{3 \sqrt{x} + 4} x + 30 x^{3/4} \sqrt{3} - 24 \sqrt{3 \sqrt{x} + 4} \sqrt{x} - 16 \sqrt{3 \sqrt{x} + 4}\right)\right)$$

"mean and variance",  $\infty$ , undefined

$$mf := \frac{2^{1+4r} 3^{-2r} \Gamma(2-2r) \Gamma\left(2r + \frac{3}{2}\right)}{\sqrt{\pi}}$$

"MF", 
$$\frac{2^{1+4r} 3^{-2r} \Gamma(2-2r) \Gamma\left(2r + \frac{3}{2}\right)}{\sqrt{\pi}}$$


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$$90, \frac{\sqrt{3}}{\sqrt{4}x} \left(3\sqrt{x} + 4 \right)^{7/2}$$

"i is", 2,

$$-----$$

$$-----$$

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y \rightarrow \frac{360\sqrt{3}y|y|}{(3y^2 + 4)^{7/2}} \right], [0, \infty], ["Continuous", "PDF"] \right]$$

"l and u", 0, ∞

$$\text{"g(x)"}, \sqrt{x}, \text{"base"}, \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x+1\right)^{7/2}}, \text{"FRV(3,4)"}$$

$$\text{"f(x)"}, \frac{360 \sqrt{3} x |x|}{(3 x^2+4)^{7/2}}$$

$$\text{"F(x)"}, \frac{3 x^3 (3 x^2+10) \sqrt{3}}{(3 x^2+4)^{5/2}}$$

$$\text{"IDF(x)"}, [\text{RootOf}((243 s^2 - 243) Z^{10} + (1620 s^2 - 1620) Z^8 + (4320 s^2 - 2700) Z^6 + 5760 s^2 Z^4 + 3840 s^2 Z^2 + 1024 s^2)], [0, 1], \text{"Continuous", "IDF"}]$$

$$\text{"S(x)"}, \frac{-9 \sqrt{3} x^5 + 9 \sqrt{3 x^2+4} x^4 - 30 x^3 \sqrt{3} + 24 \sqrt{3 x^2+4} x^2 + 16 \sqrt{3 x^2+4}}{(3 x^2+4)^{5/2}}$$

"h(x)",

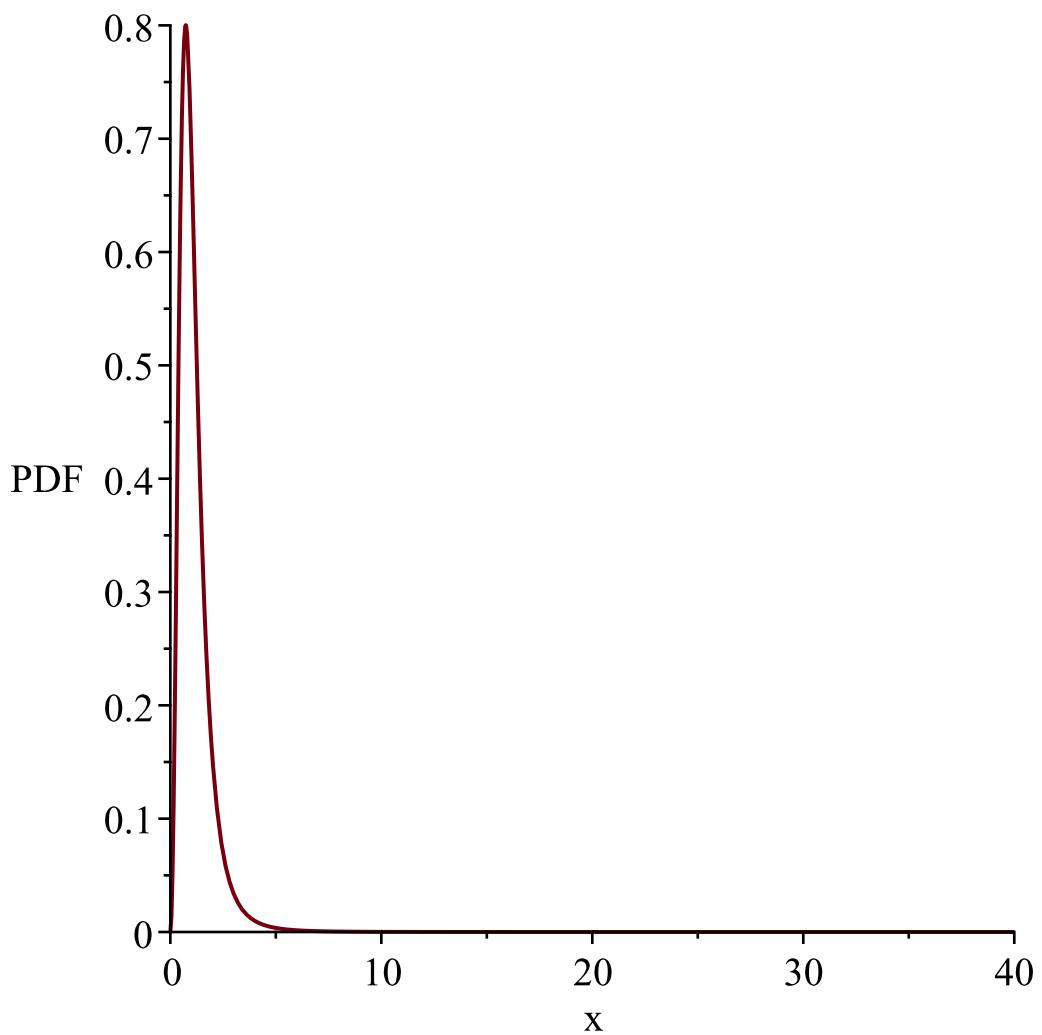
$$(360 \sqrt{3} x |x|) / ((3 x^2+4) (-9 \sqrt{3} x^5 + 9 \sqrt{3 x^2+4} x^4 - 30 x^3 \sqrt{3} + 24 \sqrt{3 x^2+4} x^2 + 16 \sqrt{3 x^2+4}))$$

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

$$mf := \int_0^{\infty} \frac{360 x^r \sqrt{3} x |x|}{(3 x^2+4)^{7/2}} dx$$

$$\text{"MF"}, \int_0^{\infty} \frac{360 x^r \sqrt{3} x |x|}{(3 x^2+4)^{7/2}} dx$$

$$\begin{aligned} \text{"MGF"}, & -\frac{1}{9} t \left(2 t^2 \sqrt{3} \pi \text{StruveH}\left(1, \frac{2}{3} t \sqrt{3}\right) - 2 \pi \sqrt{3} \text{BesselY}\left(1, -\frac{2}{3} t \sqrt{3}\right) t^2 \right. \\ & + 3 \sqrt{3} \pi \text{StruveH}\left(1, \frac{2}{3} t \sqrt{3}\right) - 3 \sqrt{3} \pi \text{BesselY}\left(1, -\frac{2}{3} t \sqrt{3}\right) - 3 t \pi \text{StruveH}\left(0, \right. \\ & \left. \left. \frac{2}{3} t \sqrt{3}\right) - 3 t \pi \text{BesselY}\left(0, -\frac{2}{3} t \sqrt{3}\right) - 4 t^2 \sqrt{3} - 6 \sqrt{3} \right) \end{aligned}$$



$360 \cdot \frac{\sqrt{3}x}{\sqrt{x^2 + 4}}$
 "i is", 3,
 "-----"
 -----"

$$\begin{aligned}
 g &:= t \mapsto \frac{1}{t} \\
 l &:= 0 \\
 u &:= \infty \\
 Temp &:= \left[\left[y \mapsto \frac{180\sqrt{3} \sqrt{\frac{1}{y}} y}{(4y+3)^3 \sqrt{\frac{4y+3}{y}}} \right], [0, \infty], ["Continuous", "PDF"] \right] \\
 &\quad "l and u", 0, \infty \\
 &\quad "g(x)", \frac{1}{x}, "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4}x + 1\right)^{7/2}}, "FRV(3,4)"
 \end{aligned}$$

$$\begin{aligned}
& "f(x)", \frac{180 \sqrt{3} \sqrt{\frac{1}{x}} x}{(4 x+3)^3 \sqrt{\frac{4 x+3}{x}}} \\
& "F(x)", -\frac{-16 x^2 \sqrt{4 x+3}-24 x \sqrt{4 x+3}+30 \sqrt{3} x-9 \sqrt{4 x+3}+9 \sqrt{3}}{\sqrt{4 x+3} (16 x^2+24 x+9)} \\
& "IDF(x)", \left[\left[s \rightarrow \frac{1}{4} \text{RootOf}((2 s-2) _Z^5+15 \sqrt{3} _Z^2-27 \sqrt{3})^2-\frac{3}{4} \right], [0, 1], \right. \\
& \left. ["Continuous", "IDF"] \right]
\end{aligned}$$

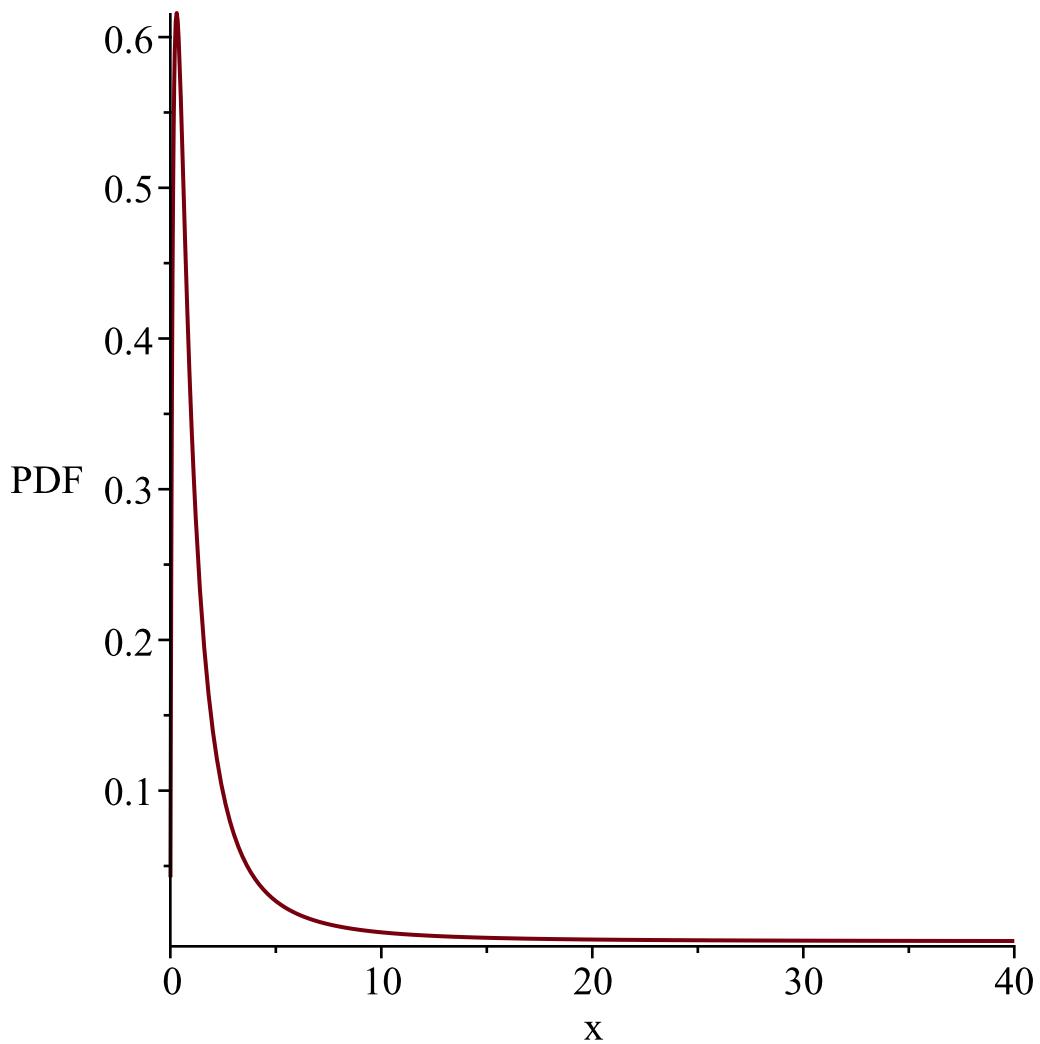
$$\begin{aligned}
& "S(x)", \frac{3 \sqrt{3} (10 x+3)}{\sqrt{4 x+3} (16 x^2+24 x+9)} \\
& "h(x)", \frac{60 x \sqrt{\frac{1}{x}}}{(10 x+3) \sqrt{\frac{4 x+3}{x}} \sqrt{4 x+3}}
\end{aligned}$$

"mean and variance", 3, ∞

$$\begin{aligned}
& mf := \int_0^{\infty} \frac{180 x^{\sim} \sqrt{3} \sqrt{\frac{1}{x}} x}{(4 x+3)^3 \sqrt{\frac{4 x+3}{x}}} dx \\
& "MF", \int_0^{\infty} \frac{180 x^{\sim} \sqrt{3} \sqrt{\frac{1}{x}} x}{(4 x+3)^3 \sqrt{\frac{4 x+3}{x}}} dx
\end{aligned}$$

$$\begin{aligned}
& "MGF", \lim_{x \rightarrow \infty} \left(\right. \\
& -\frac{1}{16} \frac{1}{(4 x+3)^{5/2} \sqrt{-t}} \left(144 \sqrt{3} \operatorname{erf} \left(\frac{1}{2} \sqrt{-t} \sqrt{4 x+3} \right) e^{-\frac{3}{4} t} t^3 x^2 \sqrt{4 x+3} \sqrt{\pi} \right. \\
& -144 \sqrt{3} e^{-\frac{3}{4} t} \operatorname{erf} \left(\frac{1}{2} \sqrt{3} \sqrt{-t} \right) t^3 x^2 \sqrt{4 x+3} \sqrt{\pi} \\
& +216 \sqrt{3} \operatorname{erf} \left(\frac{1}{2} \sqrt{-t} \sqrt{4 x+3} \right) e^{-\frac{3}{4} t} t^3 x \sqrt{4 x+3} \sqrt{\pi} \\
& \left. \left. -480 \sqrt{3} \operatorname{erf} \left(\frac{1}{2} \sqrt{-t} \sqrt{4 x+3} \right) e^{-\frac{3}{4} t} t^2 x^2 \sqrt{4 x+3} \sqrt{\pi} \right) \right)
\end{aligned}$$

$$\begin{aligned}
& -216\sqrt{3} e^{-\frac{3}{4}t} \operatorname{erf}\left(\frac{1}{2}\sqrt{3}\sqrt{-t}\right) t^3 x \sqrt{4x+3} \sqrt{\pi} \\
& + 480\sqrt{3} e^{-\frac{3}{4}t} \operatorname{erf}\left(\frac{1}{2}\sqrt{3}\sqrt{-t}\right) t^2 x^2 \sqrt{4x+3} \sqrt{\pi} \\
& - 720\sqrt{3} \operatorname{erf}\left(\frac{1}{2}\sqrt{-t}\sqrt{4x+3}\right) e^{-\frac{3}{4}t} t^2 x \sqrt{4x+3} \sqrt{\pi} \\
& + 720\sqrt{3} e^{-\frac{3}{4}t} \operatorname{erf}\left(\frac{1}{2}\sqrt{3}\sqrt{-t}\right) t^2 x \sqrt{4x+3} \sqrt{\pi} + 768 x^2 (-t)^{3/2} \sqrt{4x+3} \\
& + 432 x (-t)^{5/2} \sqrt{4x+3} + 81\sqrt{3} \operatorname{erf}\left(\frac{1}{2}\sqrt{-t}\sqrt{4x+3}\right) e^{-\frac{3}{4}t} \sqrt{\pi} \sqrt{4x+3} t^3 \\
& - 81 e^{-\frac{3}{4}t} \sqrt{3} t^3 \sqrt{\pi} \operatorname{erf}\left(\frac{1}{2}\sqrt{3}\sqrt{-t}\right) \sqrt{4x+3} \\
& - 270\sqrt{3} \operatorname{erf}\left(\frac{1}{2}\sqrt{-t}\sqrt{4x+3}\right) e^{-\frac{3}{4}t} \sqrt{\pi} \sqrt{4x+3} t^2 \\
& + 270 e^{-\frac{3}{4}t} \sqrt{3} t^2 \sqrt{\pi} \operatorname{erf}\left(\frac{1}{2}\sqrt{3}\sqrt{-t}\right) \sqrt{4x+3} + 288 x^2 (-t)^{5/2} \sqrt{4x+3} \\
& + 480\sqrt{3} e^{tx} \sqrt{-t} x - 1296\sqrt{3} e^{tx} (-t)^{3/2} x - 432\sqrt{3} e^{tx} (-t)^{5/2} x - 960\sqrt{3} e^{tx} (-t)^{3/2} x^2 \\
& - 288\sqrt{3} e^{tx} (-t)^{5/2} x^2 - 256 x^2 \sqrt{-t} \sqrt{4x+3} - 384 x \sqrt{-t} \sqrt{4x+3} \\
& - 432\sqrt{3} e^{tx} (-t)^{3/2} - 162\sqrt{3} e^{tx} (-t)^{5/2} + 144\sqrt{3} e^{tx} \sqrt{-t} + 1152 x (-t)^3 \\
& /2 \sqrt{4x+3} - 144\sqrt{-t} \sqrt{4x+3} + 162 (-t)^{5/2} \sqrt{4x+3} + 432 (-t)^{3/2} \sqrt{4x+3} \Big)
\end{aligned}$$



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180\, , {\frac {\sqrt {3}}{\sqrt {{x}^{-1}}x}}{ \left( 4\,,x+3\,\right) } \\
^3\} \\
\frac {1}{\sqrt {\left( \frac {4}{x+3}\,x\right) }}} \\
"i is", 4, \\
" \\
-----" \\
g := t \rightarrow \arctan(t) \\
l := 0 \\
u := \infty \\
Temp := \left[ \left[ y \rightarrow \frac {180\,\sqrt {3}\,\sqrt {\tan(y)}}{\left( 3\,\tan(y) + 4\right) ^{7/2}}\,\left( 1 + \tan(y)^2\right) \right] , \left[ 0, \frac {1}{2}\,\pi \right] , \left[ "Continuous", "PDF" \right] \right] \\
"l and u", 0, \infty \\
"g(x)", \arctan(x), "base", \frac {45}{64}\,\frac {\sqrt {3}\,\sqrt {4}\,\sqrt {x}}{\left( \frac {3}{4}\,x + 1\right) ^{7/2}}, "FRV(3,4)" \\
"f(x)", \frac {180\,\sqrt {3}\,\sqrt {\tan(x)}}{\left( 3\,\tan(x) + 4\right) ^{7/2}}\,\left( 1 + \tan(x)^2\right)

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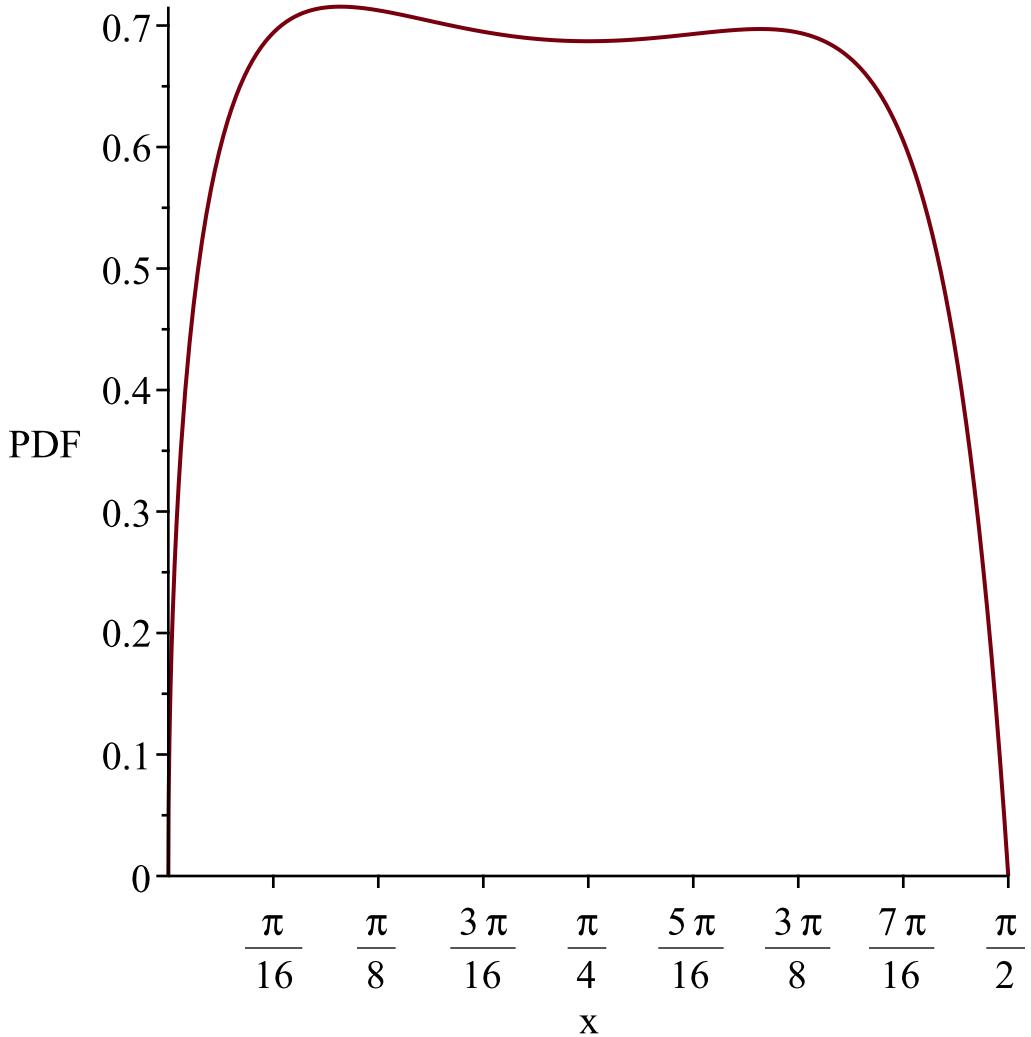
$$\begin{aligned}
& \text{"F(x)"}, \frac{3 \sqrt{\frac{\sin(x)}{\cos(x)}} \sin(x) (10 \cos(x) + 3 \sin(x)) \sqrt{3}}{(3 \sin(x) + 4 \cos(x))^2 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}}} \\
& \text{"IDF(x)"}, \left[\left[s \rightarrow \arctan \left(\text{RootOf} \left((243 s^2 - 243) Z^{10} + (1620 s^2 - 1620) Z^8 + (4320 s^2 - 2700) Z^6 + 5760 s^2 Z^4 + 3840 s^2 Z^2 + 1024 s^2)^2 \right) \right], [0, 1], \text{"Continuous", "IDF"} \right] \\
& \text{"S(x)"}, - \left(30 \sqrt{\frac{\sin(x)}{\cos(x)}} \sin(x) \sqrt{3} \cos(x) - 9 \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} \cos(x)^2 \right. \\
& \quad - 24 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} \sin(x) \cos(x) - 7 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} \cos(x)^2 \\
& \quad \left. + 9 \sqrt{\frac{\sin(x)}{\cos(x)}} \sqrt{3} - 9 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} \right) \Bigg/ \left(\sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} (9 \right. \\
& \quad \left. + 7 \cos(x)^2 + 24 \sin(x) \cos(x)) \right) \\
& \text{"h(x)"}, \left(180 \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} \cos(x) (9 + 7 \cos(x)^2 + 24 \sin(x) \cos(x)) \right) \Bigg/ \\
& \quad \left(2373 \sin(x) \cos(x)^4 \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} + 3114 \cos(x)^5 \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} \right. \\
& \quad - 237 \sin(x) \cos(x)^4 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} - 3116 \cos(x)^5 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} \\
& \quad - 4050 \sin(x) \cos(x)^2 \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} - 1332 \cos(x)^3 \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} \\
& \quad \left. + 3834 \sin(x) \cos(x)^2 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} + 2520 \cos(x)^3 \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} \right. \\
& \quad \left. - 243 \sin(x) \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} - 1782 \sqrt{3} \sqrt{\frac{\sin(x)}{\cos(x)}} \cos(x) \right. \\
& \quad \left. + 243 \sin(x) \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} + 1620 \cos(x) \sqrt{\frac{3 \sin(x) + 4 \cos(x)}{\cos(x)}} \right) \\
& \text{"mean and variance"}, 180 \sqrt{3} \left(\int_0^{\frac{1}{2} \pi} \frac{x \sqrt{\tan(x)} (1 + \tan(x)^2)}{(3 \tan(x) + 4)^{7/2}} dx \right), 180 \sqrt{3} \left(\right. \\
& \quad \left. \int_0^{\frac{1}{2} \pi} \frac{x^2 \sqrt{\tan(x)} (1 + \tan(x)^2)}{(3 \tan(x) + 4)^{7/2}} dx \right) - 97200 \left(\int_0^{\frac{1}{2} \pi} \frac{x \sqrt{\tan(x)} (1 + \tan(x)^2)}{(3 \tan(x) + 4)^{7/2}} dx \right)^2
\end{aligned}$$

$$\begin{aligned}
mf &:= \int_0^{\frac{1}{2}\pi} \frac{180 x^{\sim} \sqrt{3} \sqrt{\tan(x)} (1 + \tan(x)^2)}{(3 \tan(x) + 4)^{7/2}} dx \\
& \text{"MF", } \int_0^{\frac{1}{2}\pi} \frac{180 x^{\sim} \sqrt{3} \sqrt{\tan(x)} (1 + \tan(x)^2)}{(3 \tan(x) + 4)^{7/2}} dx \\
& \text{"MGF", } 180 \sqrt{3} \left(\int_0^{\frac{1}{2}\pi} \frac{e^{tx} \sqrt{\tan(x)} (1 + \tan(x)^2)}{(3 \tan(x) + 4)^{7/2}} dx \right)
\end{aligned}$$

*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

```
180\, , {\frac {\sqrt {3}}{\sqrt {\tan \left( x \right) }} \left( 1+ \left( \tan \left( x \right) \right) ^{2} \right) ^{7/2}}\, \left( 3\,\tan \left( x \right) +4 \right) ^{7/2}}
```

"i is", 5,

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

$$\begin{aligned} g &:= t \rightarrow e^t \\ l &:= 0 \\ u &:= \infty \end{aligned}$$

$$Temp := \left[\left[y \rightarrow \frac{180 \sqrt{3} \sqrt{\ln(y)}}{(3 \ln(y) + 4)^{7/2} y} \right], [1, \infty], ["Continuous", "PDF"] \right]$$

"l and u", 0, ∞

$$\begin{aligned} "g(x)", e^x, "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, "FRV(3,4)" \end{aligned}$$

$$"f(x)", \frac{180 \sqrt{3} \sqrt{\ln(x)}}{(3 \ln(x) + 4)^{7/2} x}$$

$$"F(x)", \frac{3 \sqrt{3} \ln(x)^{3/2} (3 \ln(x) + 10)}{(3 \ln(x) + 4)^{5/2}}$$

"IDF(x)", $\left[\left[s \rightarrow e^{RootOf((243 s^2 - 243) Z^{10} + (1620 s^2 - 1620) Z^8 + (4320 s^2 - 2700) Z^6 + 5760 s^2 Z^4 + 3840 s^2 Z^2 + 1024 s^2)^2} \right], [0, 1], ["Continuous", "IDF"] \right]$

$$\begin{aligned} "S(x)", -\frac{1}{(3 \ln(x) + 4)^{5/2}} &\left(9 \sqrt{3} \ln(x)^{5/2} + 30 \sqrt{3} \ln(x)^{3/2} - 9 \ln(x)^2 \sqrt{3 \ln(x) + 4} \right. \\ &\left. - 24 \ln(x) \sqrt{3 \ln(x) + 4} - 16 \sqrt{3 \ln(x) + 4} \right) \end{aligned}$$

$$\begin{aligned} "h(x)", &\left(180 \sqrt{3} \sqrt{\ln(x)} \right) / \left((3 \ln(x) + 4) x \left(-9 \sqrt{3} \ln(x)^{5/2} - 30 \sqrt{3} \ln(x)^{3/2} \right. \right. \\ &\left. \left. + 9 \ln(x)^2 \sqrt{3 \ln(x) + 4} + 24 \ln(x) \sqrt{3 \ln(x) + 4} + 16 \sqrt{3 \ln(x) + 4} \right) \right) \end{aligned}$$

"mean and variance", ∞ , undefined

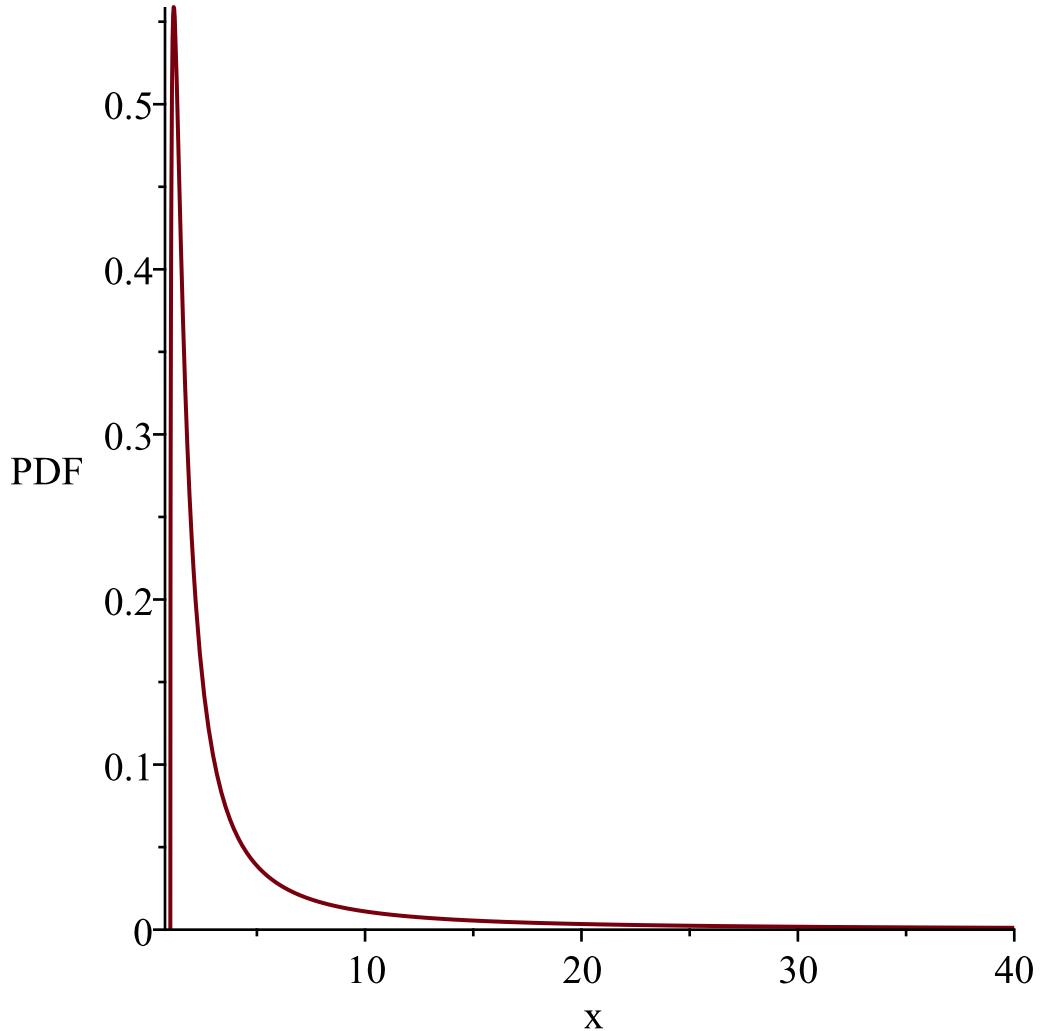
$$\begin{aligned} mf &:= \infty \\ "MF", \infty & \end{aligned}$$

$$"MGF", \int_1^{\infty} \frac{180 e^{tx} \sqrt{3} \sqrt{\ln(x)}}{(3 \ln(x) + 4)^{7/2} x} dx$$

*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

180\, , {\frac {\sqrt {\ln \left(x \right) }}{\sqrt {3}}}{\left(3\,\ln \left(x \right) +4\,x \right) ^{7/2}}

"i is", 6,

"

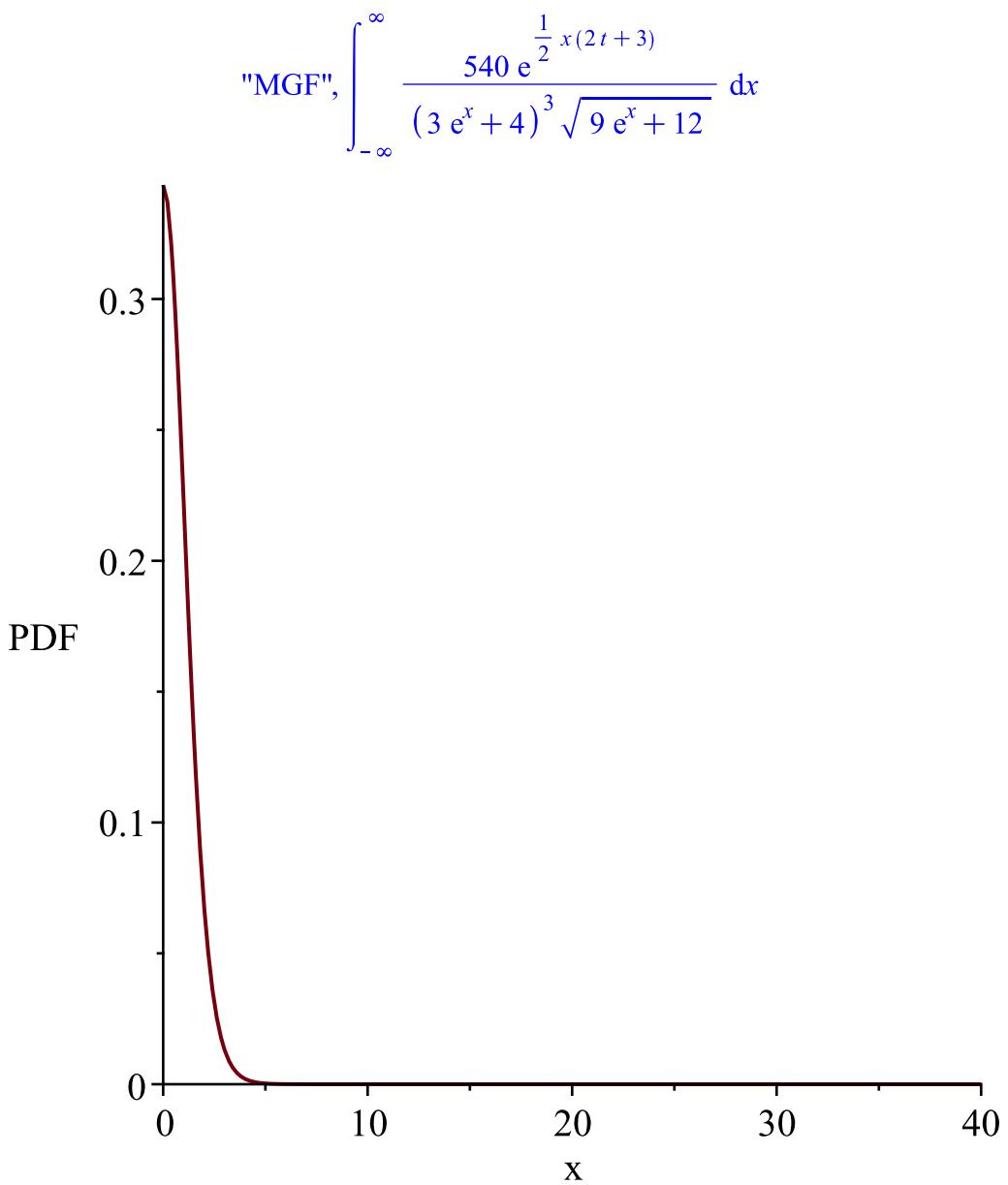
-----"

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

$l := 0$

$u := \infty$

$$\begin{aligned}
Temp := & \left[\left[y \sim \frac{180 \sqrt{3} e^{\frac{3}{2} y}}{(3 e^y + 4)^{7/2}} \right], [-\infty, \infty], ["Continuous", "PDF"] \right] \\
& "l and u", 0, \infty \\
& "g(x)", \ln(x), "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, "FRV(3,4)" \\
& "f(x)", \frac{180 \sqrt{3} e^{\frac{3}{2} x}}{(3 e^x + 4)^{7/2}} \\
& "F(x)", \frac{3 (3 e^x + 10) \sqrt{3} e^{\frac{3}{2} x}}{(3 e^x + 4)^{5/2}} \\
& "IDF(x)", [[s \rightarrow 2 \ln(RootOf((243 s^2 - 243) Z^{10} + (1620 s^2 - 1620) Z^8 + (4320 s^2 - 2700) Z^6 + 5760 s^2 Z^4 + 3840 s^2 Z^2 + 1024 s^2))]], [0, 1], ["Continuous", "IDF"]] \\
& "S(x)", -\frac{9 \sqrt{3} e^{\frac{5}{2} x} - 9 e^{2x} \sqrt{3 e^x + 4} + 30 \sqrt{3} e^{\frac{3}{2} x} - 24 e^x \sqrt{3 e^x + 4} - 16 \sqrt{3 e^x + 4}}{(3 e^x + 4)^{5/2}} \\
& "h(x)", -\left(180 \sqrt{3} e^{\frac{3}{2} x}\right) \left/ \left((3 e^x + 4) \left(9 \sqrt{3} e^{\frac{5}{2} x} - 9 e^{2x} \sqrt{3 e^x + 4} + 30 \sqrt{3} e^{\frac{3}{2} x} - 24 e^x \sqrt{3 e^x + 4} - 16 \sqrt{3 e^x + 4}\right)\right)\right) \\
& "mean and variance", \int_{-\infty}^{\infty} \frac{540 x e^{\frac{3}{2} x}}{(3 e^x + 4)^3 \sqrt{9 e^x + 12}} dx, \int_{-\infty}^{\infty} \frac{540 x^2 e^{\frac{3}{2} x}}{(3 e^x + 4)^3 \sqrt{9 e^x + 12}} dx \\
& - \left(\int_{-\infty}^{\infty} \frac{540 x e^{\frac{3}{2} x}}{(3 e^x + 4)^3 \sqrt{9 e^x + 12}} dx \right)^2 \\
& mf := \int_{-\infty}^{\infty} \frac{180 x^r \sqrt{3} e^{\frac{3}{2} x}}{(3 e^x + 4)^{7/2}} dx \\
& "MF", \int_{-\infty}^{\infty} \frac{180 x^r \sqrt{3} e^{\frac{3}{2} x}}{(3 e^x + 4)^{7/2}} dx
\end{aligned}$$



$180 \cdot \frac{\sqrt{3} \cdot \sqrt{e^{3/2} \cdot x}}{(3 \cdot e^x + 4)^{7/2}}$

"i is", 7,

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

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y \rightsquigarrow \frac{180 \sqrt{3} \sqrt{-\ln(y)}}{(-3 \ln(y) + 4)^{7/2} y} \right], [0, 1], ["Continuous", "PDF"] \right]$$

"l and u", 0, ∞

$$\text{"g(x)"}, e^{-x}, \text{"base"}, \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x+1\right)^{7/2}}, \text{"FRV(3,4)"}$$

$$\text{"f(x)"}, \frac{180 \sqrt{3} \sqrt{-\ln (x)}}{\left(-3 \ln (x)+4\right)^{7/2} x}$$

$$\text{"F(x)"}, \begin{cases} -\frac{9 \sqrt{3} (-\ln (x))^{5/2}+30 \sqrt{3} (-\ln (x))^{3/2}-9 \ln (x)^2 \sqrt{-3 \ln (x)+4}+24 \ln (x) \sqrt{-3 \ln (x)+4}-1}{(-3 \ln (x)+4)^{5/2}} \\ \infty + \infty I \end{cases}$$

$$\text{"IDF(x)"}, \left[\left[s \rightarrow e^{-\text{RootOf}((243 s^2 - 486 s) _Z^{10} + (1620 s^2 - 3240 s) _Z^8 + (4320 s^2 - 8640 s + 1620) _Z^6 + (5760 s^2 - 11520 s + 5760) _Z^4 + (3840 s^2 - 7680 s + 3840) _Z^2 + 1024 s^2 - 2048 s + 1024)^2)}, [0, 1], \right] \right]$$

$$\text{"S(x)"}, \begin{cases} -\frac{3 \sqrt{3} (-\ln (x))^{3/2} (3 \ln (x)-10)}{(-3 \ln (x)+4)^{5/2}} & x \leq e^{\frac{4}{3}} \\ \infty + \infty I & e^{\frac{4}{3}} < x \end{cases}$$

$$\text{"h(x)"}, \begin{cases} -\frac{60}{\ln (x) (3 \ln (x)-4) x (3 \ln (x)-10)} & x \leq e^{\frac{4}{3}} \\ 0 & e^{\frac{4}{3}} < x \end{cases}$$

$$\begin{aligned} \text{"mean and variance"}, & -\frac{1}{27} \sqrt{3} \sqrt{\pi} e^{\frac{2}{3}} \left(187 \text{WhittakerW}\left(0, -1, \frac{4}{3}\right) - 120 \text{WhittakerW}\left(1, -1, \frac{4}{3}\right)\right), -\frac{1}{486} \frac{1}{\sqrt{\pi}} \left(69938 \pi^{3/2} e^{\frac{4}{3}} \text{WhittakerW}\left(0, -1, \frac{4}{3}\right)^2 - 89760 \pi^{3/2} e^{\frac{4}{3}} \text{WhittakerW}\left(0, -1, \frac{4}{3}\right) \text{WhittakerW}\left(1, -1, \frac{4}{3}\right) + 28800 \pi^{3/2} e^{\frac{4}{3}} \text{WhittakerW}\left(1, -1, \frac{4}{3}\right)^2 - 243 \sqrt{6} \text{MeijerG}\left([[0], []], \left[\left[\frac{5}{2}, \frac{1}{2}\right], []\right], \left[\left[\frac{5}{2}, \frac{1}{2}\right], \left[\frac{8}{3}\right]\right]\right)\right) \end{aligned}$$

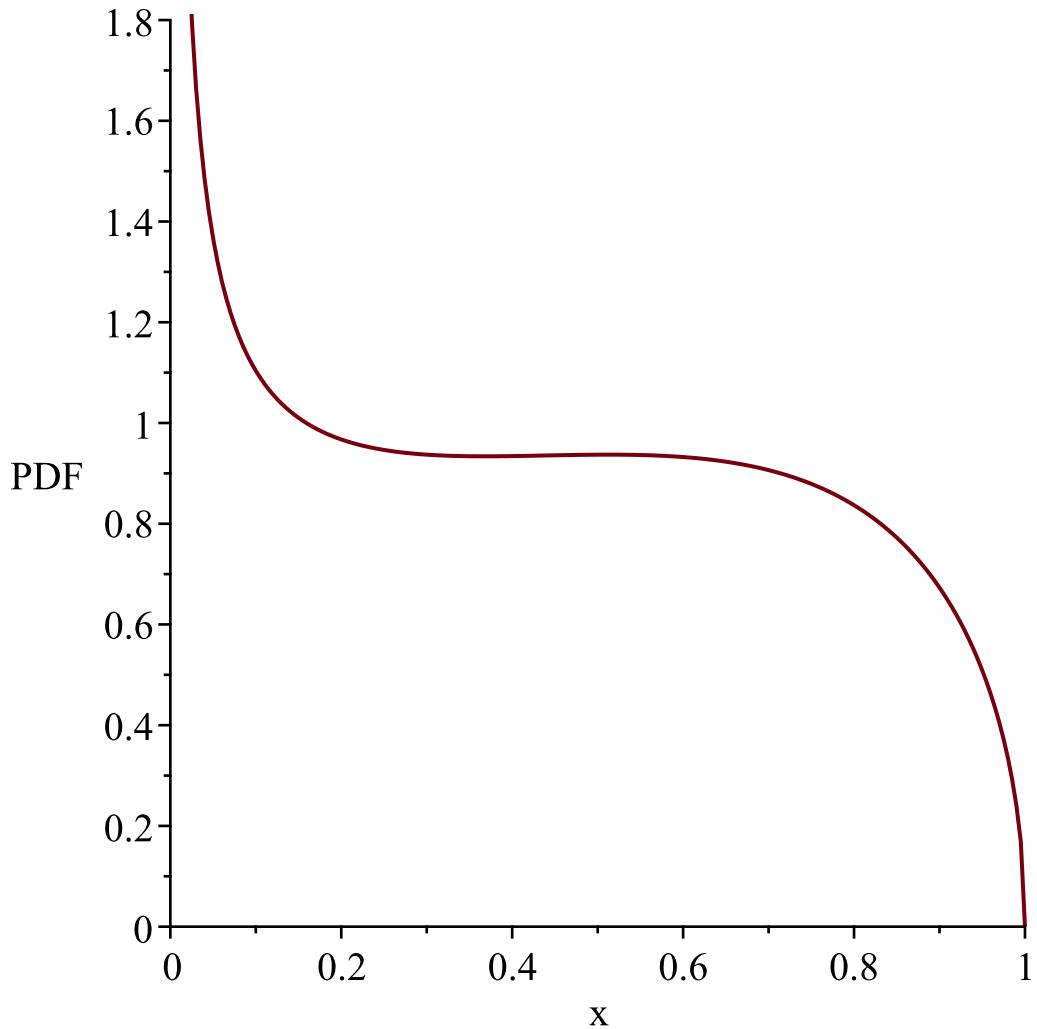
$$mf := \frac{\sqrt{3} \text{MeijerG}\left([[0], []], \left[\left[\frac{5}{2}, \frac{1}{2}\right], []\right], \left[\frac{4}{3} r\right]\right)}{\sqrt{r} \sqrt{\pi}}$$

$$\text{"MF", } \frac{\sqrt{3} \operatorname{MeijerG}\left(\left[\left[0\right], \left[\right]\right], \left[\left[\frac{5}{2}, \frac{1}{2}\right], \left[\right]\right], \frac{4}{3} r\right)}{\sqrt{r} \sqrt{\pi}}$$

$$\text{"MGF", } 180 \sqrt{3} \left(\int_0^1 \frac{e^{tx} \sqrt{-\ln(x)}}{(-3 \ln(x) + 4)^{7/2} x} dx \right)$$

*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

```
180\, , {\frac {\sqrt {3}}{\sqrt {-\ln \left( x \right) }}}{ \left( -3\, \ln \left( x \right) +4 \right) ^{7/2}x} \\
"i is", 8,
```

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

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y \sim \rightarrow \frac{180 \sqrt{3} e^{-\frac{3}{2} y}}{(3 e^{-y} + 4)^{7/2}} \right], [-\infty, \infty], ["Continuous", "PDF"] \right]$$

"l and u", 0, ∞

$$"g(x)", -\ln(x), "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, "FRV(3,4)"$$

$$"f(x)", \frac{180 \sqrt{3} e^{-\frac{3}{2} x}}{(3 e^{-x} + 4)^{7/2}}$$

$$"F(x)", -\frac{-64 e^{3x} + 30 \sqrt{3} \sqrt{3 + 4 e^x} e^x - 144 e^{2x} + 9 \sqrt{3 + 4 e^x} \sqrt{3} - 108 e^x - 27}{(3 + 4 e^x)^3}$$

ERROR(IDF): Could not find the appropriate inverse

ERROR(IDF): Could not find the appropriate inverse

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

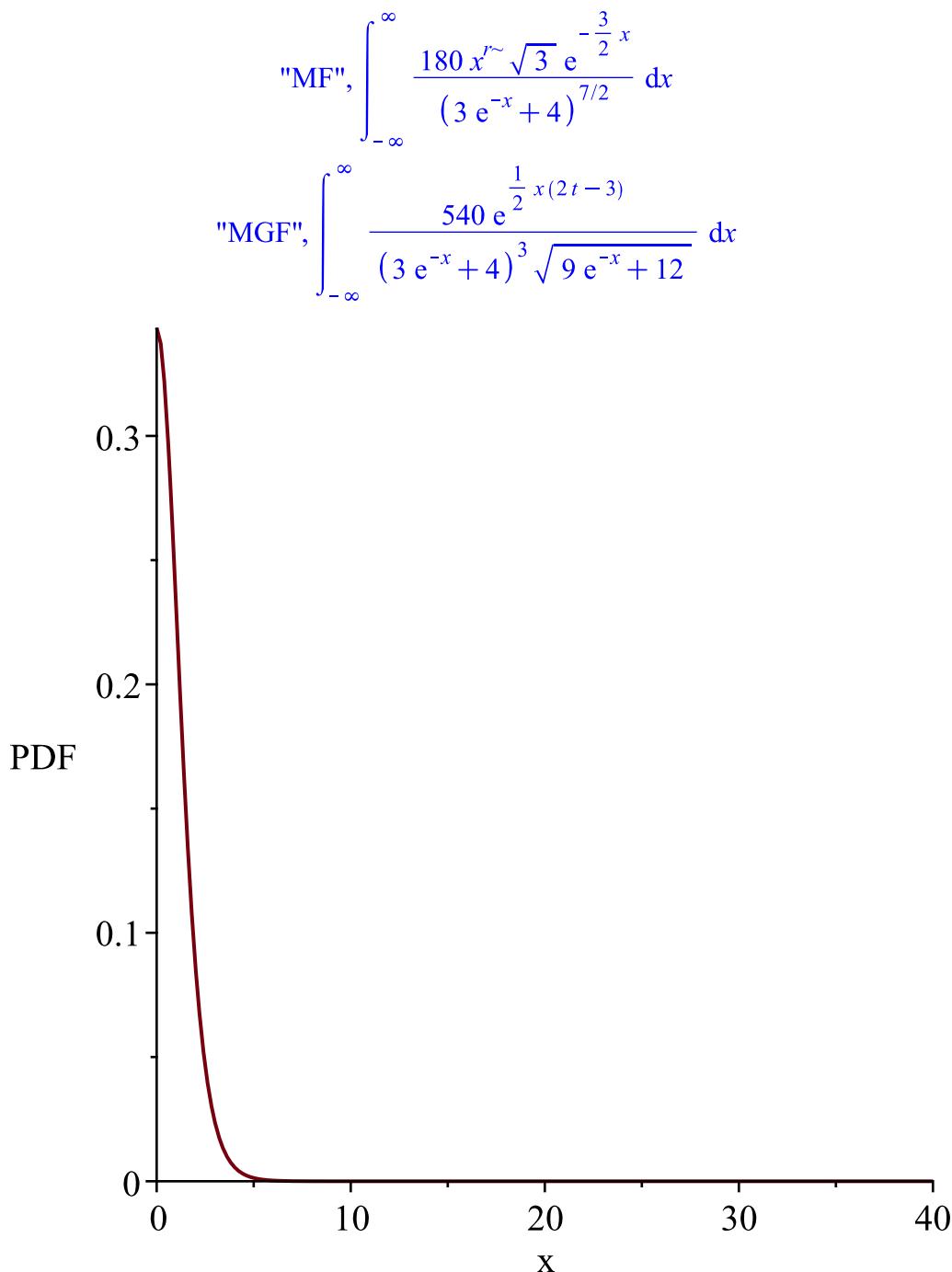
$$"S(x)", \frac{3 \sqrt{3} (10 e^x + 3)}{(3 + 4 e^x)^{5/2}}$$

$$"h(x)", \frac{60 e^{-\frac{3}{2} x} (3 + 4 e^x)^{5/2}}{((3 + 4 e^x) e^{-x})^{7/2} (10 e^x + 3)}$$

"mean and variance",

$$\int_{-\infty}^{\infty} \frac{540 x e^{-\frac{3}{2} x}}{(3 e^{-x} + 4)^3 \sqrt{9 e^{-x} + 12}} dx, \int_{-\infty}^{\infty} \frac{540 x^2 e^{-\frac{3}{2} x}}{(3 e^{-x} + 4)^3 \sqrt{9 e^{-x} + 12}} dx$$
$$- \left(\int_{-\infty}^{\infty} \frac{540 x e^{-\frac{3}{2} x}}{(3 e^{-x} + 4)^3 \sqrt{9 e^{-x} + 12}} dx \right)^2$$

$$mf := \int_{-\infty}^{\infty} \frac{180 x'^{\sim} \sqrt{3} e^{-\frac{3}{2} x}}{(3 e^{-x} + 4)^{7/2}} dx$$



```

180\, , {\frac {\sqrt {3}\,{\rm e}^{-3/2\,x}}{\left (3\,{\rm e}^{-x}+4 \right )^{7/2}}}
    \left ( \left (3\,{\rm e}^{-x}+4 \right )^{7/2} \right )\}
    "i is", 9,
    "
    -----"

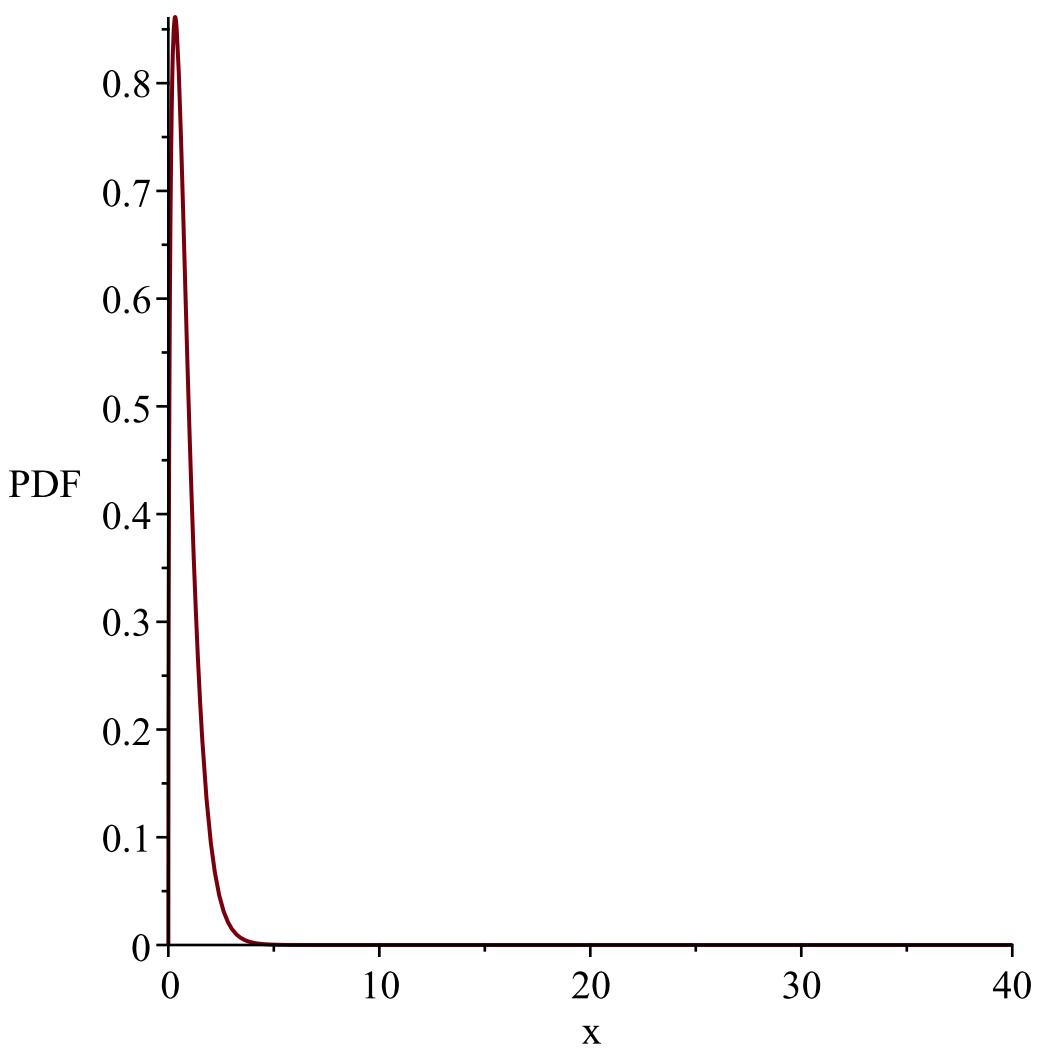
```

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

$$l := 0$$

$$u := \infty$$

$$\begin{aligned}
Temp &:= \left[\left[y \sim \frac{180 \sqrt{3} \sqrt{e^{y \sim} - 1} e^{y \sim}}{(3 e^{y \sim} + 1)^{7/2}} \right], [0, \infty], ["Continuous", "PDF"] \right] \\
&\quad "l" \text{ and } "u", 0, \infty \\
&"g(x)", \ln(x + 1), "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, "FRV(3,4)" \\
&"f(x)", \frac{180 \sqrt{3} \sqrt{e^x - 1} e^x}{(3 e^x + 1)^{7/2}} \\
&"F(x)", \frac{3 \sqrt{e^x - 1} (3 e^{2x} + 4 e^x - 7) \sqrt{3}}{(3 e^x + 1)^{5/2}} \\
&"IDF(x)", \left[[s \rightarrow \ln(RootOf((243 s^2 - 243) Z^10 + (1620 s^2 - 1620) Z^8 + (4320 s^2 - 2700) Z^6 + 5760 s^2 Z^4 + 3840 s^2 Z^2 + 1024 s^2)^2 + 1)] \right], [0, 1], ["Continuous", "IDF"] \\
&"S(x)", -\frac{1}{(3 e^x + 1)^{5/2}} (9 \sqrt{e^x - 1} \sqrt{3} e^{2x} + 12 \sqrt{e^x - 1} \sqrt{3} e^x - 9 e^{2x} \sqrt{3 e^x + 1} \\
&\quad - 21 \sqrt{e^x - 1} \sqrt{3} - 6 e^x \sqrt{3 e^x + 1} - \sqrt{3 e^x + 1}) \\
&"h(x)", -\left(180 \sqrt{3} \sqrt{e^x - 1} e^x\right) / \left((3 e^x + 1) (9 \sqrt{e^x - 1} \sqrt{3} e^{2x} + 12 \sqrt{e^x - 1} \sqrt{3} e^x\right. \\
&\quad \left.- 9 e^{2x} \sqrt{3 e^x + 1} - 21 \sqrt{e^x - 1} \sqrt{3} - 6 e^x \sqrt{3 e^x + 1} - \sqrt{3 e^x + 1})\right) \\
&"\text{mean and variance}", \int_0^{\infty} \frac{180 x e^x \sqrt{3 e^x - 3}}{(3 e^x + 1)^{7/2}} dx, \int_0^{\infty} \frac{180 x^2 e^x \sqrt{3 e^x - 3}}{(3 e^x + 1)^{7/2}} dx \\
&\quad - \left(\int_0^{\infty} \frac{180 x e^x \sqrt{3 e^x - 3}}{(3 e^x + 1)^{7/2}} dx \right)^2 \\
&mf := \int_0^{\infty} \frac{180 x^{r \sim} \sqrt{3} \sqrt{e^x - 1} e^x}{(3 e^x + 1)^{7/2}} dx \\
&"MF", \int_0^{\infty} \frac{180 x^{r \sim} \sqrt{3} \sqrt{e^x - 1} e^x}{(3 e^x + 1)^{7/2}} dx \\
&"MGF", \int_0^{\infty} \frac{180 e^{x(t+1)} \sqrt{3 e^x - 3}}{(3 e^x + 1)^{7/2}} dx
\end{aligned}$$



$180 \cdot \frac{\sqrt{e^x - 1}}{\sqrt{3} \cdot e^x} \cdot \left(\frac{3}{e^x + 1} \right)^{7/2}$
 "i is", 10,

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

$$\begin{aligned}
 g &:= t \mapsto \frac{1}{\ln(t+2)} \\
 l &:= 0 \\
 u &:= \infty
 \end{aligned}$$

$$Temp := \left[\left[y \mapsto \frac{180 \sqrt{3} \sqrt{\frac{1}{e^y} - 2} \cdot \frac{1}{e^y}}{\left(3 e^y - 2 \right)^{7/2} y^2} \right], \left[0, \frac{1}{\ln(2)} \right], ["Continuous", "PDF"] \right]$$

"l and u", 0, ∞

$$"g(x)", \frac{1}{\ln(x+2)}, "base", \frac{45}{64} \cdot \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1 \right)^{7/2}}, "FRV(3,4)"$$

$$"f(x)", \frac{180\sqrt{3}\sqrt{\frac{1}{e^x}-2}e^{\frac{1}{x}}}{\left(3e^{\frac{1}{x}}-2\right)^{7/2}x^2}$$

$$"F(x)", \frac{1}{\left(3e^{\frac{1}{x}}-2\right)^{5/2}} \left(6\sqrt{\frac{1}{e^x}-2}\sqrt{3}e^{\frac{1}{x}} - 9\sqrt{\frac{1}{e^x}-2}\sqrt{3}e^{\frac{2}{x}} + 9e^{\frac{2}{x}}\sqrt{3e^{\frac{1}{x}}-2} \right. \\ \left. + 24\sqrt{\frac{1}{e^x}-2}\sqrt{3} - 12e^{\frac{1}{x}}\sqrt{3e^{\frac{1}{x}}-2} + 4\sqrt{3e^{\frac{1}{x}}-2} \right)$$

$$"IDF(x)", \left[\left[s \rightarrow \frac{1}{-\ln(3) + \ln(RootOf(2304 + (s^2 - 2s)Z^{10} + 60Z^6 - 80Z^4 - 960Z^2)^2 + 2)} \right], [0, 1], ["Continuous", "IDF"] \right]$$

$$"S(x)", -\frac{3\sqrt{\frac{1}{e^x}-2}\sqrt{3}\left(2e^{\frac{1}{x}}-3e^{\frac{2}{x}}+8\right)}{\left(3e^{\frac{1}{x}}-2\right)^{5/2}}$$

$$"h(x)", \frac{60e^{\frac{1}{x}}}{\left(3e^{\frac{1}{x}}-2\right)x^2\left(3e^{\frac{2}{x}}-2e^{\frac{1}{x}}-8\right)}$$

$$"mean and variance", 180 \left(\int_0^{\frac{1}{\ln(2)}} \frac{e^{\frac{1}{x}}\sqrt{\frac{1}{e^x}-6}}{x\left(3e^{\frac{1}{x}}-2\right)^{7/2}} dx \right), 180 \left(\int_0^{\frac{1}{\ln(2)}} \frac{e^{\frac{1}{x}}\sqrt{\frac{1}{e^x}-6}}{\left(3e^{\frac{1}{x}}-2\right)^{7/2}} dx \right)$$

$$-32400 \left(\int_0^{\frac{1}{\ln(2)}} \frac{e^{\frac{1}{x}}\sqrt{\frac{1}{e^x}-6}}{x\left(3e^{\frac{1}{x}}-2\right)^{7/2}} dx \right)^2$$

$$mf := \int_0^{\frac{1}{\ln(2)}} \frac{180 x^{\frac{1}{x}} \sqrt{3} \sqrt{\frac{1}{e^x} - 2} e^{\frac{1}{x}}}{\left(3 e^{\frac{1}{x}} - 2\right)^{7/2} x^2} dx$$

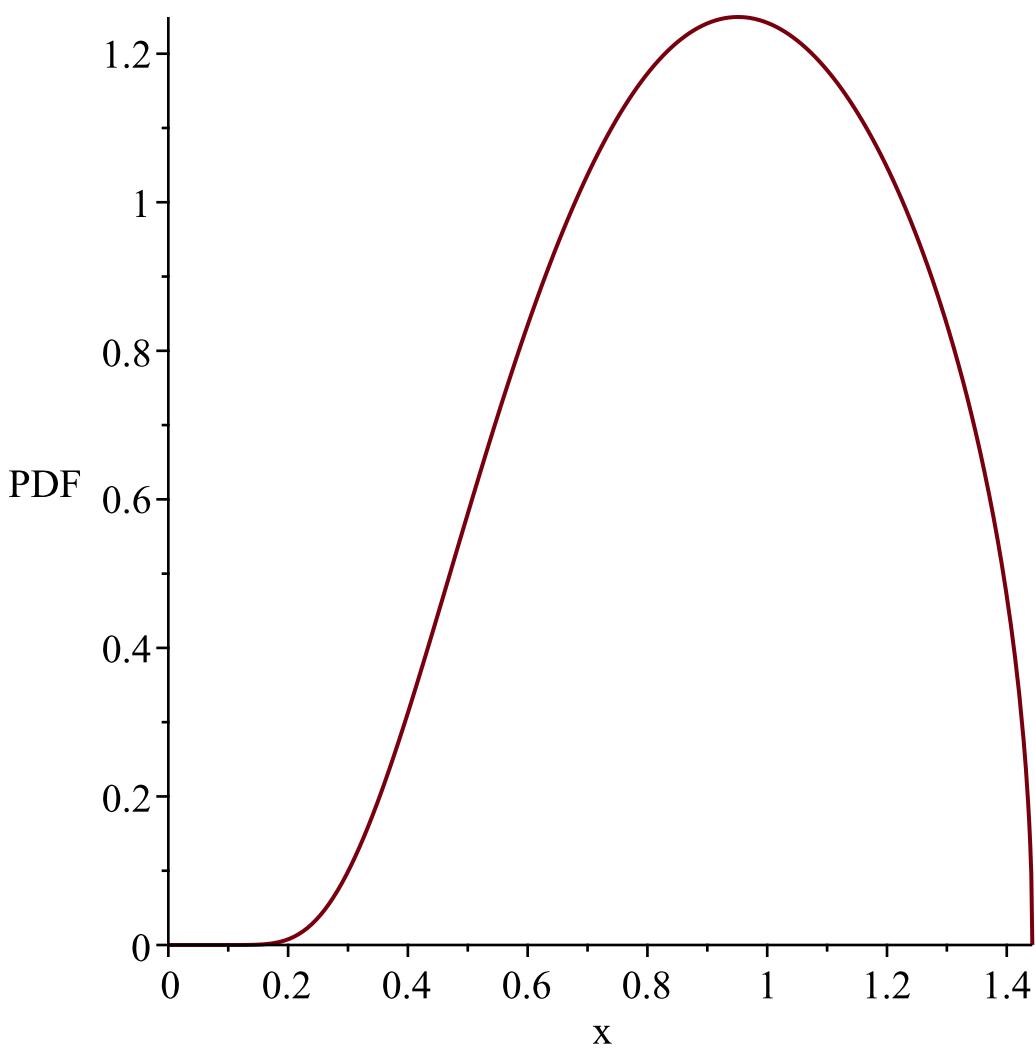
$$"MF", \int_0^{\frac{1}{\ln(2)}} \frac{180 x^{\frac{1}{x}} \sqrt{3} \sqrt{\frac{1}{e^x} - 2} e^{\frac{1}{x}}}{\left(3 e^{\frac{1}{x}} - 2\right)^{7/2} x^2} dx$$

$$"MGF", 180 \left(\int_0^{\frac{1}{\ln(2)}} \frac{e^{\frac{tx^2+1}{x}} \sqrt{\frac{1}{3 e^{\frac{1}{x}} - 6}}}{\left(3 e^{\frac{1}{x}} - 2\right)^{7/2} x^2} dx \right)$$

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

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

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*

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

Resetting high to RV's maximum support value

```
180\, ,{\frac {\sqrt {{{{\rm e}}^{{{\left \{ x \right \}}^{-1}}}}-2}\sqrt {3}{{{\rm e}}^{{{\left \{ x \right \}}^{-1}}}}}{\left ( 3{{{\rm e}}^{{{\left \{ x \right \}}^{-1}}}}-2 \right )^{{7/2}}{{x}^2}}}}\}\,{\it "i is"},11,
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"-----"  
-----"
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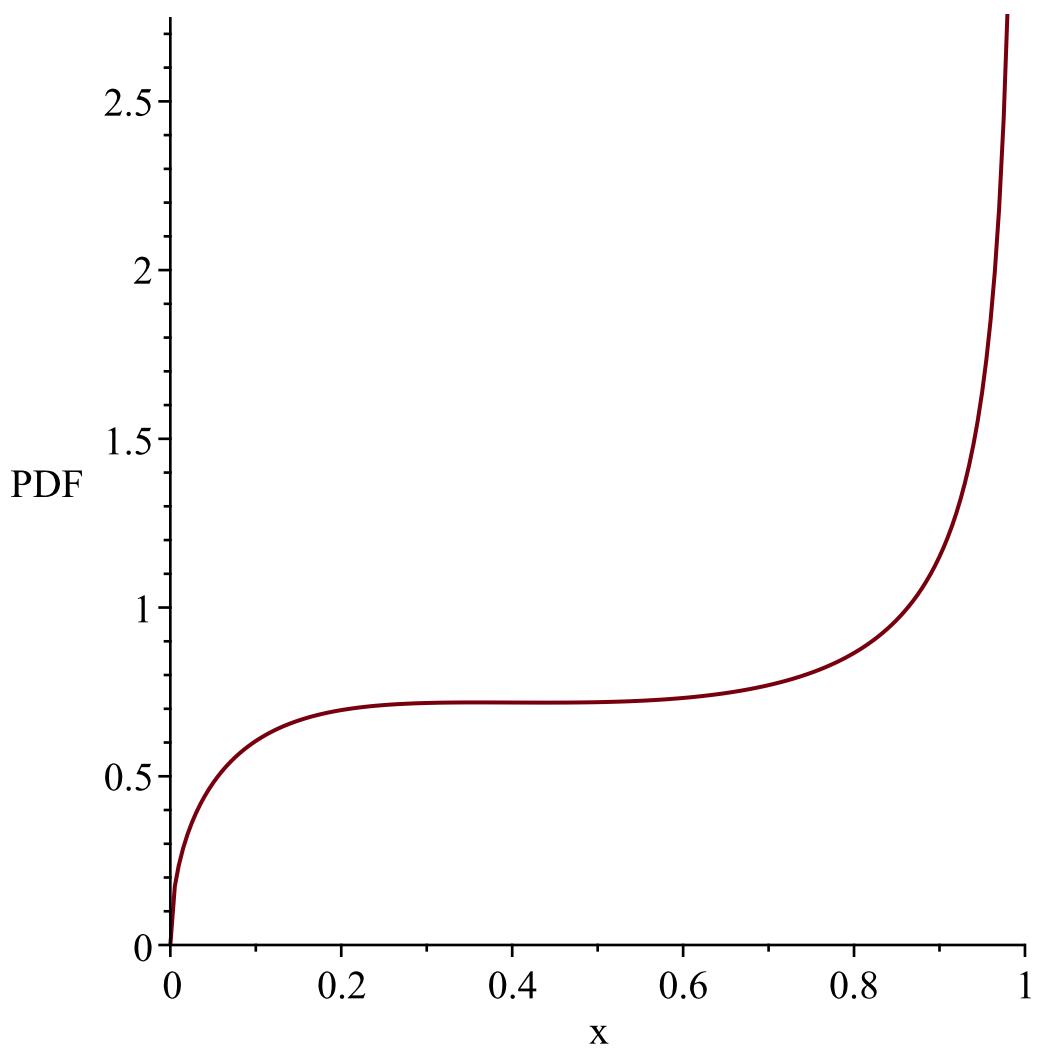
$$\begin{aligned} g &:= t \rightarrow \tanh(t) \\ l &:= 0 \\ u &:= \infty \end{aligned}$$

$$\begin{aligned} \text{Temp} &:= \left[\left[y \rightarrow -\frac{180 \sqrt{3} \sqrt{\operatorname{arctanh}(y)}}{(3 \operatorname{arctanh}(y) + 4)^{7/2} (y^2 - 1)} \right], [0, 1], ["\text{Continuous}", "PDF"] \right] \\ &\quad "l and u", 0, \infty \end{aligned}$$

$$\begin{aligned}
& \text{"g(x)"}, \tanh(x), \text{"base"}, \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, \text{"FRV(3,4)"}
\\
& \text{"f(x)"}, -\frac{180 \sqrt{3} \sqrt{\operatorname{arctanh}(x)}}{(3 \operatorname{arctanh}(x) + 4)^{7/2} (x^2 - 1)}
\\
& \text{"F(x)"}, \frac{3 \operatorname{arctanh}(x)^{3/2} (3 \operatorname{arctanh}(x) + 10) \sqrt{3}}{(3 \operatorname{arctanh}(x) + 4)^{5/2}}
\\
& \text{"IDF(x)"}, \left[[s \rightarrow \tanh(\operatorname{RootOf}((243 s^2 - 243) Z^10 + (1620 s^2 - 1620) Z^8 + (4320 s^2 - 2700) Z^6 + 5760 s^2 Z^4 + 3840 s^2 Z^2 + 1024 s^2)^2)], [0, 1], \text{"Continuous"}, \text{"IDF"} \right]
\\
& \text{"S(x)"}, \frac{1}{(3 \operatorname{arctanh}(x) + 4)^{5/2}} (-9 \operatorname{arctanh}(x)^{5/2} \sqrt{3} - 30 \operatorname{arctanh}(x)^{3/2} \sqrt{3} \\
& + 9 \operatorname{arctanh}(x)^2 \sqrt{3 \operatorname{arctanh}(x) + 4} + 24 \operatorname{arctanh}(x) \sqrt{3 \operatorname{arctanh}(x) + 4} \\
& + 16 \sqrt{3 \operatorname{arctanh}(x) + 4})
\\
& \text{"h(x)"}, \left(\frac{180 \sqrt{3} \sqrt{\operatorname{arctanh}(x)}}{(3 \operatorname{arctanh}(x) + 4) (x^2 - 1) (9 \operatorname{arctanh}(x)^{5/2} \sqrt{3} - 9 \operatorname{arctanh}(x)^2 \sqrt{3 \operatorname{arctanh}(x) + 4} + 30 \operatorname{arctanh}(x)^{3/2} \sqrt{3} - 24 \operatorname{arctanh}(x) \sqrt{3 \operatorname{arctanh}(x) + 4} - 16 \sqrt{3 \operatorname{arctanh}(x) + 4})} \right)
\\
& \text{"mean and variance"}, -180 \sqrt{3} \left(\int_0^1 \frac{\sqrt{\operatorname{arctanh}(x)} x}{(x^2 - 1) (3 \operatorname{arctanh}(x) + 4)^{7/2}} dx \right), -180 \sqrt{3} \left(\int_0^1 \frac{\sqrt{\operatorname{arctanh}(x)} x^2}{(x^2 - 1) (3 \operatorname{arctanh}(x) + 4)^{7/2}} dx \right) - 97200 \left(\int_0^1 \frac{\sqrt{\operatorname{arctanh}(x)} x}{(x^2 - 1) (3 \operatorname{arctanh}(x) + 4)^{7/2}} dx \right)^2
\\
& \text{mf} := \int_0^1 \left(-\frac{180 x^2 \sqrt{3} \sqrt{\operatorname{arctanh}(x)}}{(3 \operatorname{arctanh}(x) + 4)^{7/2} (x^2 - 1)} \right) dx
\\
& \text{"MF"}, \int_0^1 \left(-\frac{180 x^2 \sqrt{3} \sqrt{\operatorname{arctanh}(x)}}{(3 \operatorname{arctanh}(x) + 4)^{7/2} (x^2 - 1)} \right) dx
\\
& \text{"MGF"}, -180 \sqrt{3} \left(\int_0^1 \frac{e^{tx} \sqrt{\operatorname{arctanh}(x)}}{(3 \operatorname{arctanh}(x) + 4)^{7/2} (x^2 - 1)} dx \right)
\end{aligned}$$

*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

```

-180\,, {\frac {\sqrt {3}}{\sqrt {\{{\rm arctanh}\left (x\right )\}}}\{\\left ( 3
\,{\rm arctanh}\left (x\right )+4\,\right )^{7/2}\,\left ( {x}^2-1
\,\right )\}
"i is",12,
" -----
-----"

```

$g := t \rightarrow \sinh(t)$
 $l := 0$
 $u := \infty$

$Temp := \left[\left[y \rightarrow \frac{180 \sqrt{3} \sqrt{\operatorname{arcsinh}(y)}}{(3 \operatorname{arcsinh}(y) + 4)^{7/2} \sqrt{y^2 + 1}} \right], [0, \infty], ["\text{Continuous}", "PDF"] \right]$
 "l and u", 0, ∞

$$\text{"g(x)"}, \sinh(x), \text{"base"}, \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x+1\right)^{7/2}}, \text{"FRV(3,4)"}$$

$$\text{"f(x)"}, \frac{180 \sqrt{3} \sqrt{\operatorname{arcsinh}(x)}}{\left(3 \operatorname{arcsinh}(x)+4\right)^{7/2} \sqrt{x^2+1}}$$

$$\text{"F(x)"}, -\frac{3 \sqrt{3} \left(3 \ln \left(-x+\sqrt{x^2+1}\right)-10\right) \left(-\ln \left(-x+\sqrt{x^2+1}\right)\right)^{3/2}}{\left(-3 \ln \left(-x+\sqrt{x^2+1}\right)+4\right)^{5/2}}$$

$$\text{"IDF(x)"}, \left[\left[s$$

$$\rightarrow \frac{1}{2}$$

$$\mathrm{e}^{-\operatorname{RootOf}\left(\left(243 s^2-243\right) Z^{10}+\left(1620 s^2-1620\right) Z^8+\left(4320 s^2-2700\right) Z^6+5760 s^2 Z^4+3840 s^2 Z^2\right.$$

$$\left.+1024 s^2\right)^2$$

$$-\frac{1}{2}$$

$$\mathrm{e}^{-\operatorname{RootOf}\left(\left(243 s^2-243\right) Z^{10}+\left(1620 s^2-1620\right) Z^8+\left(4320 s^2-2700\right) Z^6+5760 s^2 Z^4\right.$$

$$\left.+3840 s^2 Z^2+1024 s^2\right)^2}, [0, 1], \text{"Continuous", "IDF"}\Big]$$

$$\text{"S(x)"}, -\frac{1}{\left(-3 \ln \left(-x+\sqrt{x^2+1}\right)+4\right)^{5/2}} \left(9 \sqrt{3} \left(-\ln \left(-x+\sqrt{x^2+1}\right)\right)^{5/2}+30 \sqrt{3} \left(-\ln \left(-x+\sqrt{x^2+1}\right)\right)^{3/2}-9 \ln \left(-x+\sqrt{x^2+1}\right)^2 \sqrt{-3 \ln \left(-x+\sqrt{x^2+1}\right)+4}+24 \ln \left(-x+\sqrt{x^2+1}\right) \sqrt{-3 \ln \left(-x+\sqrt{x^2+1}\right)+4}-16 \sqrt{-3 \ln \left(-x+\sqrt{x^2+1}\right)+4}\right)$$

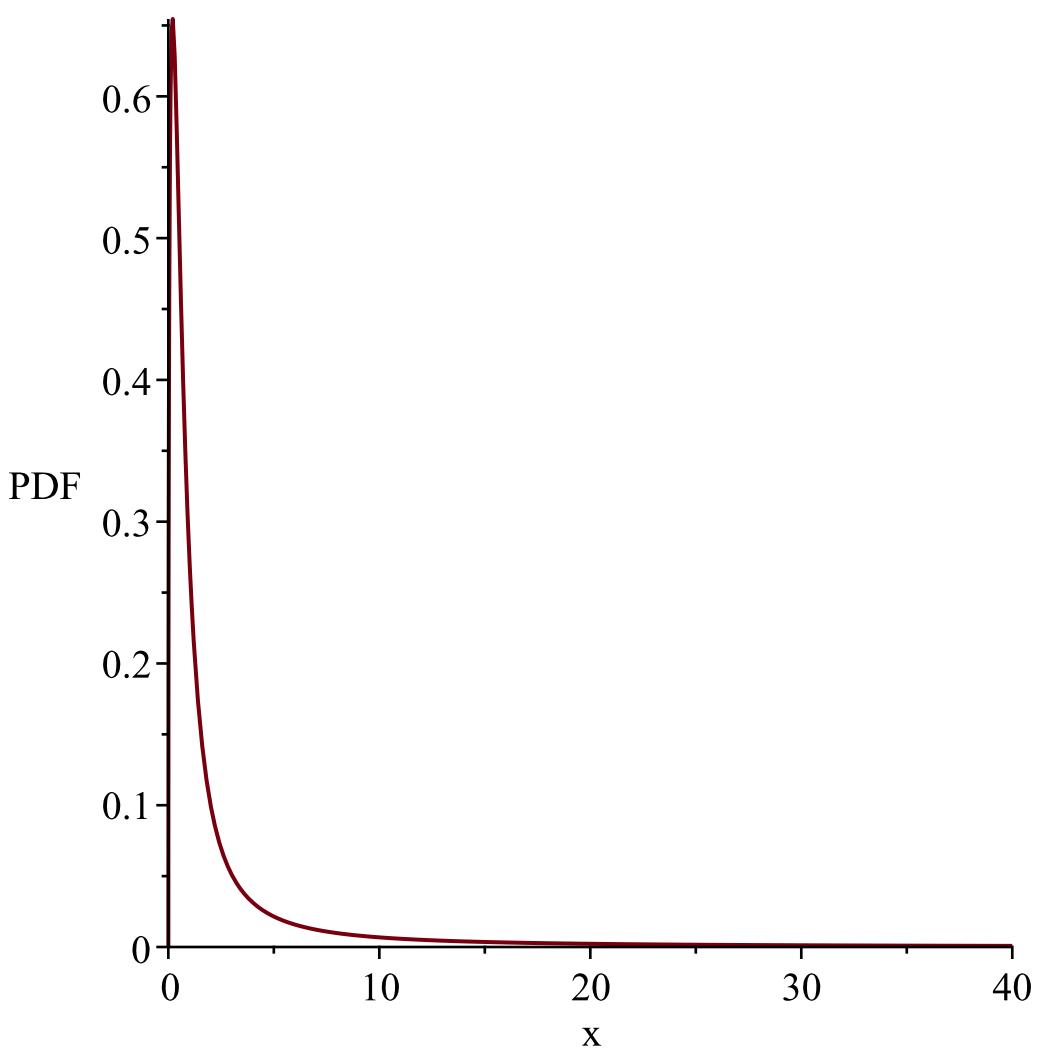
$$\text{"h(x)"}, -\left(\frac{180 \sqrt{3} \sqrt{\operatorname{arcsinh}(x)} \left(-3 \ln \left(-x+\sqrt{x^2+1}\right)+4\right)^{5/2}}{\left(3 \operatorname{arcsinh}(x)+4\right)^7}\right. \\ \left.^{/2} \sqrt{x^2+1} \left(9 \sqrt{3} \left(-\ln \left(-x+\sqrt{x^2+1}\right)\right)^{5/2}+30 \sqrt{3} \left(-\ln \left(-x+\sqrt{x^2+1}\right)\right)^{3/2}-9 \ln \left(-x+\sqrt{x^2+1}\right)^2 \sqrt{-3 \ln \left(-x+\sqrt{x^2+1}\right)+4}+24 \ln \left(-x+\sqrt{x^2+1}\right) \sqrt{-3 \ln \left(-x+\sqrt{x^2+1}\right)+4}-16 \sqrt{-3 \ln \left(-x+\sqrt{x^2+1}\right)+4}\right)\right)$$

"mean and variance", ∞ , *undefined*

$$mf := \infty$$

$$\text{"MF"}, \infty$$

$$\text{"MGF"}, \int_0^{\infty} \frac{180 \mathrm{e}^{t x} \sqrt{3} \sqrt{\operatorname{arcsinh}(x)}}{\left(3 \operatorname{arcsinh}(x)+4\right)^{7/2} \sqrt{x^2+1}} \mathrm{d} x$$

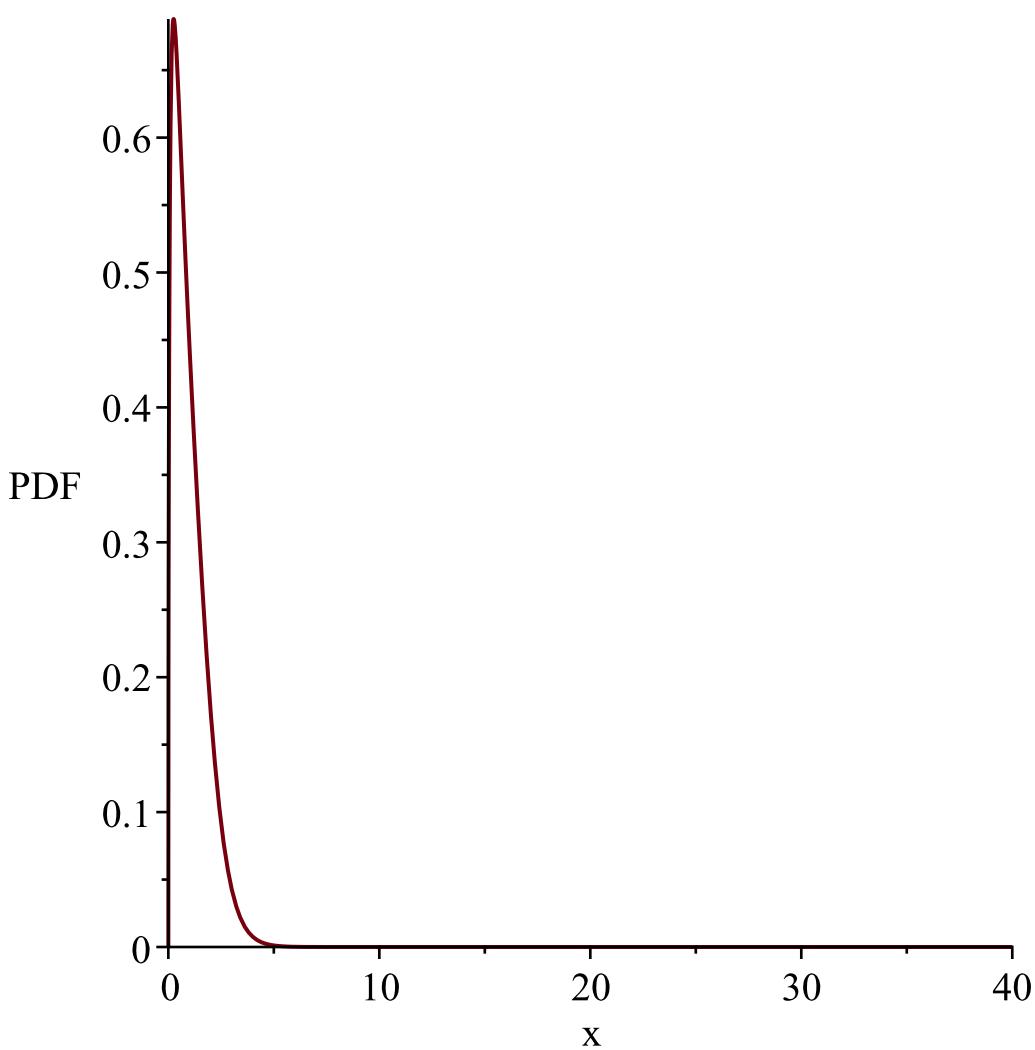


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180\,{\frac {\sqrt {3}}{\sqrt {\rm arcsinh} \left( x \right) }}\{{\left( 3\,{\rm arcsinh} \left( x \right) +4 \right) ^{7/2}}\sqrt {{x}^{2}+1} \}
"i is", 13,
"
-----"
-----"
g := t->arcsinh(t)
l := 0
u := infinity
Temp := [[y~>> 180*sqrt(3)*sqrt(sinh(y~))*cosh(y~)/((3*sinh(y~)+4)^7/2), [0, infinity], ["Continuous", "PDF"]],
          "l and u", 0, infinity
          "g(x)", arcsinh(x), "base", 45/64 * (sqrt(3)*sqrt(4)*sqrt(x)/((3/4*x+1)^7/2), "FRV(3,4)"

```

$$\begin{aligned}
& "f(x)", \frac{180 \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} \\
& "F(x)", -\frac{3 \sqrt{3} \sqrt{e^{2x} - 1} (-3 e^{4x} - 20 e^{3x} + 6 e^{2x} + 20 e^x - 3)}{(3 e^{2x} + 8 e^x - 3)^{5/2}} \\
& "IDF(x)", [[\ln @ (s \rightarrow RootOf((243 s^2 - 243) Z^{10} + (3240 s^2 - 3240) Z^9 + (16065 s^2 - 9585) Z^8 + (33120 s^2 + 12960) Z^7 + (12030 s^2 + 29970) Z^6 + (-39952 s^2 - 19440) Z^5 + (-12030 s^2 - 29970) Z^4 + (33120 s^2 + 12960) Z^3 + (-16065 s^2 + 9585) Z^2 + (3240 s^2 - 3240) Z - 243 s^2 + 243))], [0, 1], ["Continuous", "IDF"]]] \\
& "S(x)", -\frac{1}{(3 e^{2x} + 8 e^x - 3)^{5/2}} (9 \sqrt{3} \sqrt{e^{2x} - 1} e^{4x} + 60 \sqrt{3} \sqrt{e^{2x} - 1} e^{3x} \\
& \quad - 18 \sqrt{3} \sqrt{e^{2x} - 1} e^{2x} - 60 \sqrt{3} \sqrt{e^{2x} - 1} e^x - 9 e^{4x} \sqrt{3 e^{2x} + 8 e^x - 3} \\
& \quad - 48 e^{3x} \sqrt{3 e^{2x} + 8 e^x - 3} - 46 e^{2x} \sqrt{3 e^{2x} + 8 e^x - 3} + 9 \sqrt{3} \sqrt{e^{2x} - 1} \\
& \quad + 48 e^x \sqrt{3 e^{2x} + 8 e^x - 3} - 9 \sqrt{3 e^{2x} + 8 e^x - 3}) \\
& "h(x)", \left(\frac{180 \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} \right) / \left(\frac{180 x \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} \right)^2 \\
& "mean and variance", \int_0^\infty \frac{180 x \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx, \int_0^\infty \frac{180 x^2 \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} \\
& \quad dx - \left(\int_0^\infty \frac{180 x \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx \right)^2 \\
& \quad mf := \int_0^\infty \frac{180 x^{\sim} \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx \\
& \quad "MF", \int_0^\infty \frac{180 x^{\sim} \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx \\
& \quad "MGF", \int_0^\infty \frac{180 e^{tx} \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx
\end{aligned}$$



$180\sqrt{3}\sqrt{\sinh(x)}/(\cosh(x)\sqrt{1+3\sinh(x)^2})$
 "i is", 14,
 "-----"
 -----"
 "l and u"

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

$$l := 0$$

$$u := \infty$$

$$\begin{aligned}
 Temp := & \left[\left[y \rightarrow \frac{180\sqrt{3}\sqrt{-1 + \text{arccsch}(y)}}{(1 + 3 \text{arccsch}(y))^{7/2}\sqrt{y^2 + 1}} \right], \left[0, \frac{2}{e - e^{-1}} \right], \text{"Continuous"}, \right. \\
 & \left. \text{"PDF"} \right]
 \end{aligned}$$

$$"l and u", 0, \infty$$

$$\begin{aligned}
 & "g(x)", \text{csch}(x + 1), \text{"base"}, \frac{45}{64} \frac{\sqrt{3}\sqrt{4}\sqrt{x}}{\left(\frac{3}{4}x + 1\right)^{7/2}}, \text{"FRV(3,4)"}
 \end{aligned}$$

$$\begin{aligned}
& "f(x)", \frac{180 \sqrt{3} \sqrt{-1 + \operatorname{arccsch}(x)}}{(1 + 3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2 + 1} |x|} \\
& "F(x)", 180 \sqrt{3} \left(\int_0^x \frac{\sqrt{-1 + \operatorname{arccsch}(t)}}{(1 + 3 \operatorname{arccsch}(t))^{7/2} \sqrt{t^2 + 1} |t|} dt \right) \\
& "S(x)", 1 - 180 \sqrt{3} \left(\int_0^x \frac{\sqrt{-1 + \operatorname{arccsch}(t)}}{(1 + 3 \operatorname{arccsch}(t))^{7/2} \sqrt{t^2 + 1} |t|} dt \right)
\end{aligned}$$

"h(x)",

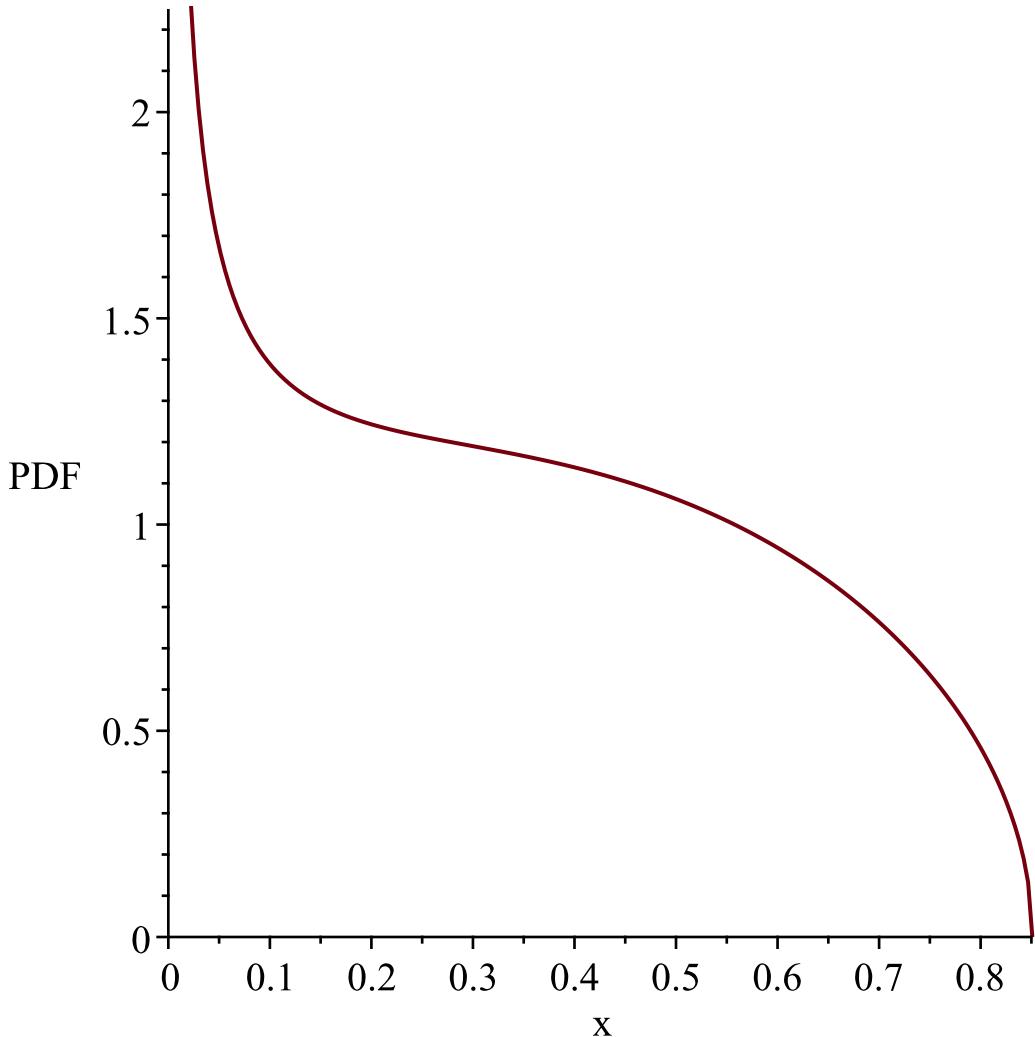
$$\begin{aligned}
& - (180 \sqrt{3} \sqrt{-1 + \operatorname{arccsch}(x)}) \left(\left((1 + 3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2 + 1} |x| \left(180 \sqrt{3} \left(\int_0^x \frac{\sqrt{-1 + \operatorname{arccsch}(t)}}{(1 + 3 \operatorname{arccsch}(t))^{7/2} \sqrt{t^2 + 1} |t|} dt \right) - 1 \right) \right) \right. \\
& \left. "mean \ and \ variance", 180 \left(\int_0^{\frac{2e}{e^2-1}} \frac{x \sqrt{-3 + 3 \operatorname{arccsch}(x)}}{(1 + 3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2 + 1}} dx \right), 180 \left(\int_0^{\frac{2e}{e^2-1}} \frac{x \sqrt{-3 + 3 \operatorname{arccsch}(x)}}{(1 + 3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2 + 1}} dx \right)^2 \right. \\
& \left. - 32400 \left(\int_0^{\frac{2e}{e^2-1}} \frac{\sqrt{-3 + 3 \operatorname{arccsch}(x)}}{(1 + 3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2 + 1}} dx \right)^2 \right) \\
& mf := \int_0^{\frac{2}{e-e^{-1}}} \frac{180 x^{\sim} \sqrt{3} \sqrt{-1 + \operatorname{arccsch}(x)}}{(1 + 3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2 + 1} |x|} dx \\
& "MF", \int_0^{\frac{2}{e-e^{-1}}} \frac{180 x^{\sim} \sqrt{3} \sqrt{-1 + \operatorname{arccsch}(x)}}{(1 + 3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2 + 1} |x|} dx
\end{aligned}$$

$$\text{"MGF", 180} \left(\int_0^{\frac{2e}{e^2-1}} \frac{e^{tx} \sqrt{-3+3 \operatorname{arccsch}(x)}}{x (1+3 \operatorname{arccsch}(x))^{7/2} \sqrt{x^2+1}} dx \right)$$

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

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

Resetting high to RV's maximum support value



```
180,\,{\frac {\sqrt {3}}{\sqrt {-1+\operatorname {arccsch} \left (x\right )}}}\,{\frac {e^{tx}{\sqrt {-3+3\operatorname {arccsch} \left (x\right )}}}{x \left (1+3\operatorname {arccsch} \left (x\right )\right )^{7/2}{\sqrt {x^2+1}}}}\,dx
"i is",15,
"-----"
-----"
```

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

$$l := 0$$

$$\begin{aligned}
u &:= \infty \\
Temp &:= \left[\left[y \rightarrow \frac{180 \sqrt{3} \sqrt{-\frac{\sinh(y) - 1}{\sinh(y)}} \sinh(y) \cosh(y)}{(\sinh(y) + 3)^3 \sqrt{\frac{\sinh(y) + 3}{\sinh(y)}}} \right], [0, \ln(1 + \sqrt{2})], \right. \\
&\quad \left. ["Continuous", "PDF"] \right] \\
& "l" \text{ and } "u", 0, \infty \\
& "g(x)", \operatorname{arccsch}(x + 1), "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, "FRV(3,4)" \\
& "f(x)", \frac{180 \sqrt{3} \sqrt{-\frac{\sinh(x) - 1}{\sinh(x)}} \sinh(x) \cosh(x)}{(\sinh(x) + 3)^3 \sqrt{\frac{\sinh(x) + 3}{\sinh(x)}}} \\
& "F(x)", -\left(99 \sqrt{3} \sqrt{-e^{2x} + 2 e^x + 1} e^{4x} \sqrt{-e^{4x} - 4 e^{3x} + 14 e^{2x} + 4 e^x - 1}\right. \\
&\quad - 48 \sqrt{3} \sqrt{-e^{2x} + 2 e^x + 1} e^{3x} \sqrt{-e^{4x} - 4 e^{3x} + 14 e^{2x} + 4 e^x - 1} \\
&\quad + 24 \sqrt{3} \sqrt{-e^{2x} + 2 e^x + 1} e^x \sqrt{-e^{4x} - 4 e^{3x} + 14 e^{2x} + 4 e^x - 1} \\
&\quad - 99 \sqrt{3} \sqrt{-e^{2x} + 2 e^x + 1} e^{2x} \sqrt{-e^{4x} - 4 e^{3x} + 14 e^{2x} + 4 e^x - 1} \\
&\quad + 24 \sqrt{3} \sqrt{-e^{2x} + 2 e^x + 1} e^{5x} \sqrt{-e^{4x} - 4 e^{3x} + 14 e^{2x} + 4 e^x - 1} \\
&\quad - 21 \sqrt{3} \sqrt{-e^{2x} + 2 e^x + 1} e^{6x} \sqrt{-e^{4x} - 4 e^{3x} + 14 e^{2x} + 4 e^x - 1} \\
&\quad - \sqrt{e^{2x} + 6 e^x - 1} \sqrt{e^{4x} + 6 e^{3x} - 2 e^{2x} - 6 e^x + 1} \sqrt{-e^{4x} + 2 e^{3x} + 2 e^{2x} - 2 e^x - 1} e^{4x} \\
&\quad - 12 \sqrt{e^{2x} + 6 e^x - 1} \sqrt{e^{4x} + 6 e^{3x} - 2 e^{2x} - 6 e^x + 1} \sqrt{-e^{4x} + 2 e^{3x} + 2 e^{2x} - 2 e^x - 1} \\
&\quad e^{3x} \\
&\quad + 12 \sqrt{e^{2x} + 6 e^x - 1} \sqrt{e^{4x} + 6 e^{3x} - 2 e^{2x} - 6 e^x + 1} \sqrt{-e^{4x} + 2 e^{3x} + 2 e^{2x} - 2 e^x - 1} \\
&\quad e^x \\
&\quad - 34 \sqrt{e^{2x} + 6 e^x - 1} \sqrt{e^{4x} + 6 e^{3x} - 2 e^{2x} - 6 e^x + 1} \sqrt{-e^{4x} + 2 e^{3x} + 2 e^{2x} - 2 e^x - 1} \\
&\quad e^{2x} + 21 \sqrt{3} \sqrt{-e^{2x} + 2 e^x + 1} \sqrt{-e^{4x} - 4 e^{3x} + 14 e^{2x} + 4 e^x - 1} \\
&\quad - \sqrt{e^{2x} + 6 e^x - 1} \sqrt{e^{4x} + 6 e^{3x} - 2 e^{2x} - 6 e^x + 1} \sqrt{-e^{4x} + 2 e^{3x} + 2 e^{2x} - 2 e^x - 1} \Big) / \\
&\quad \left(\sqrt{e^{2x} + 6 e^x - 1} \sqrt{e^{4x} + 6 e^{3x} - 2 e^{2x} - 6 e^x + 1} \sqrt{-e^{4x} + 2 e^{3x} + 2 e^{2x} - 2 e^x - 1} (e^{4x} \right. \\
&\quad \left. + 12 e^{3x} + 34 e^{2x} - 12 e^x + 1) \right) \\
& "IDF(x)", [[\ln @ (s \rightarrow RootOf((s^2 - 2s + 1324) Z^{10} + (30s^2 - 60s - 5640) Z^9 + (355s^2
\end{aligned}$$

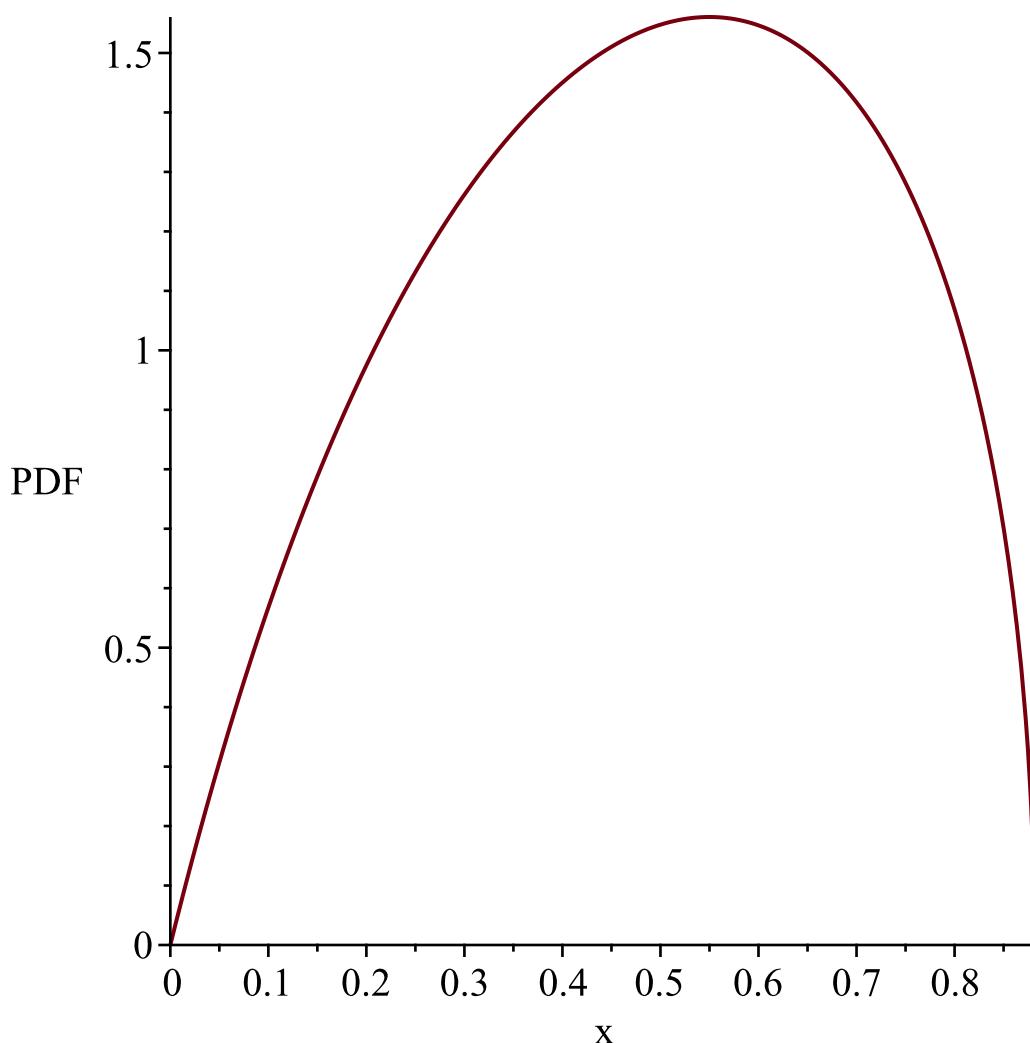
$$\begin{aligned}
& -710s - 3020) \underline{Z}^8 + (2040s^2 - 4080s + 35520) \underline{Z}^7 + (5410s^2 - 10820s \\
& + 2440) \underline{Z}^6 + (3636s^2 - 7272s - 59760) \underline{Z}^5 + (-5410s^2 + 10820s - 2440) \underline{Z}^4 \\
& + (2040s^2 - 4080s + 35520) \underline{Z}^3 + (-355s^2 + 710s + 3020) \underline{Z}^2 + (30s^2 - 60s \\
& - 5640) \underline{Z} - s^2 + 2s - 1324))], [0, 1], ["Continuous", "IDF"] \\
" \text{S}(x)", & \left(3\sqrt{3}\sqrt{-e^{2x} + 2e^x + 1}\sqrt{-e^{4x} - 4e^{3x} + 14e^{2x} + 4e^x - 1} (33e^{4x} - 16e^{3x} + 8e^x \right. \\
& \left. - 33e^{2x} + 8e^{5x} - 7e^{6x} + 7) \right) / \\
& \left(\sqrt{e^{2x} + 6e^x - 1}\sqrt{e^{4x} + 6e^{3x} - 2e^{2x} - 6e^x + 1}\sqrt{-e^{4x} + 2e^{3x} + 2e^{2x} - 2e^x - 1} (e^{4x} \right. \\
& \left. + 12e^{3x} + 34e^{2x} - 12e^x + 1) \right) \\
" \text{h}(x)", & \left(60\sqrt{e^{2x} + 6e^x - 1}\sqrt{e^{4x} + 6e^{3x} - 2e^{2x} - 6e^x + 1}\sqrt{-e^{4x} + 2e^{3x} + 2e^{2x} - 2e^x - 1} \right. \\
& \left. (e^{4x} + 12e^{3x} + 34e^{2x} - 12e^x + 1) \sqrt{-\frac{\sinh(x) - 1}{\sinh(x)}} \sinh(x) \cosh(x) \right) / \\
& \left(\sqrt{-e^{2x} + 2e^x + 1}\sqrt{-e^{4x} - 4e^{3x} + 14e^{2x} + 4e^x - 1} (33e^{4x} - 16e^{3x} + 8e^x - 33e^{2x} \right. \\
& \left. + 8e^{5x} - 7e^{6x} + 7) (\sinh(x) \cosh(x)^2 + 9\cosh(x)^2 + 26\sinh(x) \right. \\
& \left. + 18) \sqrt{\frac{\sinh(x) + 3}{\sinh(x)}} \right) \\
" \text{mean and variance}", & 90\sqrt{3} \left(\int_0^{\ln(1 + \sqrt{2})} \frac{x \sinh(2x) \sqrt{-\sinh(x) + 1}}{\sqrt{\sinh(x) + 3} (\sinh(x) \cosh(x)^2 + 9\cosh(x)^2 + 26\sinh(x) + 18)} dx \right), \\
& 90\sqrt{3} \left(\int_0^{\ln(1 + \sqrt{2})} \frac{x^2 \sinh(2x) \sqrt{-\sinh(x) + 1}}{\sqrt{\sinh(x) + 3} (\sinh(x) \cosh(x)^2 + 9\cosh(x)^2 + 26\sinh(x) + 18)} \right. \\
& \left. dx \right) \\
& - 24300 \left(\right.
\end{aligned}$$

$$\begin{aligned}
& \left. \int_0^{\ln(1+\sqrt{2})} \frac{x \sinh(2x) \sqrt{-\sinh(x) + 1}}{\sqrt{\sinh(x) + 3} (\sinh(x) \cosh(x)^2 + 9 \cosh(x)^2 + 26 \sinh(x) + 18)} dx \right)^2 \\
& mf := \int_0^{\ln(1+\sqrt{2})} \frac{180 x^{\sim} \sqrt{3} \sqrt{-\frac{\sinh(x) - 1}{\sinh(x)}} \sinh(x) \cosh(x)}{(\sinh(x) + 3)^3 \sqrt{\frac{\sinh(x) + 3}{\sinh(x)}}} dx \\
& "MF", \int_0^{\ln(1+\sqrt{2})} \frac{180 x^{\sim} \sqrt{3} \sqrt{-\frac{\sinh(x) - 1}{\sinh(x)}} \sinh(x) \cosh(x)}{(\sinh(x) + 3)^3 \sqrt{\frac{\sinh(x) + 3}{\sinh(x)}}} dx \\
& "MGF", 90 \sqrt{3} \left(\int_0^{\ln(1+\sqrt{2})} \frac{e^{tx} \sinh(2x) \sqrt{-\sinh(x) + 1}}{\sqrt{\sinh(x) + 3} (\sinh(x) \cosh(x)^2 + 9 \cosh(x)^2 + 26 \sinh(x) + 18)} dx \right)
\end{aligned}$$

*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, $\ln(1 + \sqrt{2})$

Resetting high to RV's maximum support value

```

180\,{\frac {\sqrt {3}}{\sinh \left( x \right) \cosh \left( x \right) }}\\
\left( \sinh \left( x \right) +3 \right) ^{3}}\sqrt {-{\frac {\sinh \left( x \right) -1}{\sinh \left( x \right) +3}}}}{\sinh \left( x \right) }}\\
"i is", 16.

```

"-----"

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

$$l := 0$$

$u := \infty$

$$\begin{aligned}
Temp := & \left[\left[y \sim \rightarrow \frac{180 \sqrt{3} \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{y}\right)}}{\left(1 + 3 \operatorname{arctanh}\left(\frac{1}{y}\right)\right)^{7/2} (y^2 - 1)} \right], \left[1, \frac{-e - e^{-1}}{-e + e^{-1}} \right], \left["Continuous", \right. \right. \\
& \left. \left. "PDF" \right] \right] \\
& "l" \text{ and } "u", 0, \infty \\
& "g(x)", \frac{1}{\tanh(x + 1)}, "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, "FRV(3,4)" \\
& "f(x)", \frac{180 \sqrt{3} \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{x}\right)}}{\left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{7/2} (x^2 - 1)} \\
& "F(x)", -\frac{1}{\left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{5/2}} \left(9 \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{x}\right)} \sqrt{3} \operatorname{arctanh}\left(\frac{1}{x}\right)^2 \right. \\
& \left. + 12 \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{x}\right)} \sqrt{3} \operatorname{arctanh}\left(\frac{1}{x}\right) - 9 \operatorname{arctanh}\left(\frac{1}{x}\right)^2 \sqrt{1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)} \right. \\
& \left. - 21 \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{x}\right)} \sqrt{3} - 6 \operatorname{arctanh}\left(\frac{1}{x}\right) \sqrt{1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)} \right. \\
& \left. - \sqrt{1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)} \right) \\
& "IDF(x)", \left[\left[s \right. \right. \\
& \left. \left. \rightarrow \frac{1}{\tanh\left(-\frac{1}{3} + \frac{1}{3} \operatorname{RootOf}(2304 + (s^2 - 2s) Z^{10} + 60 Z^6 - 80 Z^4 - 960 Z^2)^2\right)} \right], \right. \\
& \left. [0, 1], ["Continuous", "IDF"] \right] \\
& "S(x)", \frac{3 \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{x}\right)} \sqrt{3} \left(3 \operatorname{arctanh}\left(\frac{1}{x}\right)^2 + 4 \operatorname{arctanh}\left(\frac{1}{x}\right) - 7 \right)}{\left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{5/2}} \\
& "h(x)", \frac{60}{\left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right) (x^2 - 1) \left(3 \operatorname{arctanh}\left(\frac{1}{x}\right)^2 + 4 \operatorname{arctanh}\left(\frac{1}{x}\right) - 7 \right)}
\end{aligned}$$

"mean and variance", 180

$$\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x \sqrt{-3 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)}}{(x^2-1) \left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{7/2}} dx \right), 180$$

$$\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x^2 \sqrt{-3 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)}}{(x^2-1) \left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{7/2}} dx \right)$$

$$- 32400 \left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{x \sqrt{-3 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)}}{(x^2-1) \left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{7/2}} dx \right)^2$$

$mf :=$

$$\int_1^{\frac{-e-e^{-1}}{-e+e^{-1}}} \frac{180 x^r \sqrt{3} \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{x}\right)}}{\left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{7/2} (x^2-1)} dx$$

"MF",

$$\int_1^{\frac{-e-e^{-1}}{-e+e^{-1}}} \frac{180 x^r \sqrt{3} \sqrt{-1 + \operatorname{arctanh}\left(\frac{1}{x}\right)}}{\left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{7/2} (x^2-1)} dx$$

"MGF", 180

$$\left(\int_1^{\frac{e^2+1}{e^2-1}} \frac{e^{tx} \sqrt{-3 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)}}{(x^2-1) \left(1 + 3 \operatorname{arctanh}\left(\frac{1}{x}\right)\right)^{7/2}} dx \right)$$

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

1

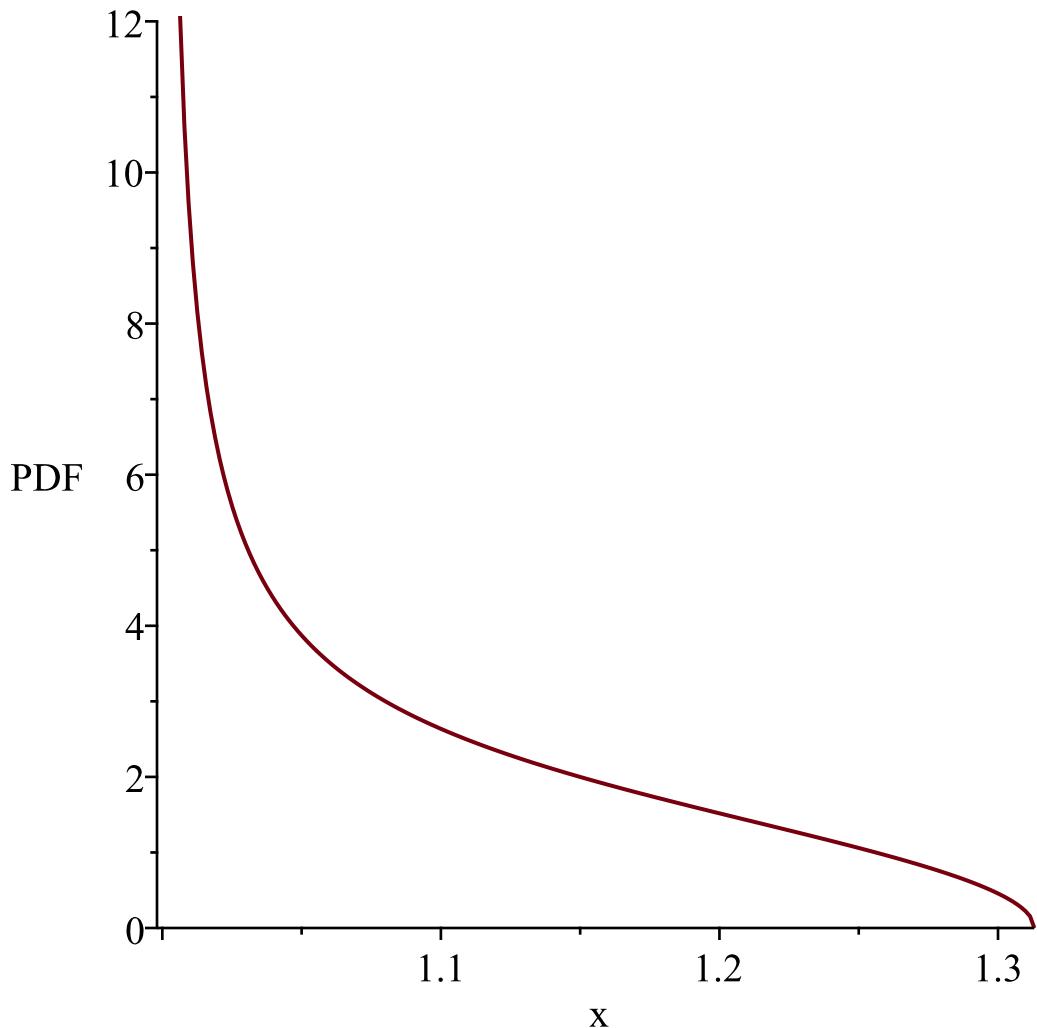
Resetting low to RV's minimum support value

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

is greater than maximum support value of the random

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

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*

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

Resetting high to RV's maximum support value

```
180\, ,{\frac {\sqrt {-1+{\it arctanh}} \left( {x}^{-1}\right) }{\sqrt {3}}}\{  
 \left( 1+3\,{\it arctanh} \left( {x}^{-1}\right) \right) ^{7/2}\\ \left( {x}^2-1\right) \}
```

"i is", 17,

```

" -----
-----"
g := t → 1
      sinh(t + 1)
l := 0
u := ∞
Temp := ⎡ ⎢ ⎣ y~ → 180 √3 √ -1 + arcsinh(1/y~)
      ⎛ 1 + 3 arcsinh(1/y~) ⎞ 7/2 √ y~² + 1 |y~| ⎤ ⎦ , ⎡ 0, - 2
      -e + e⁻¹ ⎤ , [ "Continuous",
"PDF"] ⎢ ⎣ "l and u", 0, ∞
"g(x)", 1
      sinh(x + 1), "base", 45
      64 √3 √4 √x
      ⎛ 3
      4 x + 1 ⎞ 7/2 , "FRV(3,4)"
"f(x)", 180 √3 √ -1 + arcsinh(1/x)
      ⎛ 1 + 3 arcsinh(1/x) ⎞ 7/2 √ x² + 1 |x|
"F(x)", - 1
      ⎛ 1 + 3 ln(√x² + 1) + 1 ⎞ 5/2 ⎛ 9 √ ln(√x² + 1) + 1 - ln(x) - 1 ⎞ √3
      ln(√x² + 1) + 1 - 3 ln(x) ⎢ ⎣
      ln(√x² + 1) + 1 ⎡ 2 - 18 √ ln(√x² + 1) + 1 - ln(x) - 1 ⎤ √3 ln(√x² + 1) + 1 ⎤ ln(x)
      + 9 √ ln(√x² + 1) + 1 - ln(x) - 1 ⎡ √3 ln(x) ⎤
      + 12 √ ln(√x² + 1) + 1 - ln(x) - 1 ⎡ √3 ln(√x² + 1) + 1 ⎤
      - 12 √ ln(√x² + 1) + 1 - ln(x) - 1 ⎡ √3 ln(x) - 9 ln(√x² + 1)
      + 1 ⎤ ⎡ 2 √ 1 + 3 ln(√x² + 1) + 1 - 3 ln(x) + 18 ln(√x² + 1)
      + 1 ⎤ ln(x) ⎡ √ 1 + 3 ln(√x² + 1) + 1 - 3 ln(x) ⎤
      - 9 ln(x) ⎡ √ 1 + 3 ln(√x² + 1) + 1 - 3 ln(x) ⎤
      - 21 √ ln(√x² + 1) + 1 - ln(x) - 1 ⎡ √3 - 6 ln(√x² + 1)
      + 1 ⎤ ⎡ √ 1 + 3 ln(√x² + 1) + 1 - 3 ln(x) ⎤

```

$$\begin{aligned}
& + 6 \ln(x) \sqrt{1 + 3 \ln(\sqrt{x^2 + 1} + 1) - 3 \ln(x)} - \sqrt{1 + 3 \ln(\sqrt{x^2 + 1} + 1) - 3 \ln(x)} \Big) \\
& \text{"IDF(x)", } \left[s \right. \\
& \rightarrow e^{\frac{1}{3} \left(2304 - 1152s - 288 \ln(-1) \right)} \\
& \left. \left(e^{-\frac{2}{3} (RootOf(2304 + (s^2 - 2s) Z^{10} + 60 Z^6 - 80 Z^4 - 960 Z^2) - 1) (RootOf(2304 + (s^2 - 2s) Z^{10} + 60 Z^6 - 80 Z^4 - 960 Z^2) + 1)} - 1 \right) \right]_{RootOf(2304 + (s^2 - 2s) Z^{10} + 60 Z^6 - 80 Z^4 - 960 Z^2)^2 s^2} \\
& + 576 \ln(-1) \\
& \left. \left(e^{-\frac{2}{3} (RootOf(2304 + (s^2 - 2s) Z^{10} + 60 Z^6 - 80 Z^4 - 960 Z^2) - 1) (RootOf(2304 + (s^2 - 2s) Z^{10} + 60 Z^6 - 80 Z^4 - 960 Z^2) + 1)} - 1 \right) \right]_{RootOf(2304 + (s^2 - 2s) Z^{10} + 60 Z^6 - 80 Z^4 - 960 Z^2)^2 s} \\
& + 3 \ln(-1)
\end{aligned}$$

$$+ 60 _Z^6 - 80 _Z^4 - 960 _Z^2) + 1) - 1 \Bigg) \Bigg) \text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^8 s^2 - 6 \ln \Bigg($$

$$-1 \Bigg/$$

$$\left(e^{-\frac{2}{3} (\text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2) - 1) (\text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^8 s^2 + 12 \ln \Bigg($$

$$+ 60 _Z^6 - 80 _Z^4 - 960 _Z^2) + 1) - 1 \Bigg) \Bigg) \text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^8 s^2 + 12 \ln \Bigg($$

$$-1 \Bigg/$$

$$\left(e^{-\frac{2}{3} (\text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2) - 1) (\text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^6 s^2 + 24 \ln \Bigg($$

$$- 24 \ln \Bigg(-1 \Bigg/$$

$$\left(e^{-\frac{2}{3} (\text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2) - 1) (\text{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^6 s^2 + 24 \ln \Bigg($$

$$+ 60 _Z^6 - 80 _Z^4 - 960 _Z^2) + 1) \left(-1\right) \left(RootOf(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^6 s$$

$$- 132 \ln(-1)$$

$$\left(e^{-\frac{2}{3} (RootOf(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2) - 1) (RootOf(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^4 s^2}$$

$$+ 60 _Z^6 - 80 _Z^4 - 960 _Z^2) + 1) \left(-1\right) \left(RootOf(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^4 s^2$$

$$+ 264 \ln(-1)$$

$$\left(e^{-\frac{2}{3} (RootOf(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2) - 1) (RootOf(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^4 s^2}$$

$$+ 60 _Z^6 - 80 _Z^4 - 960 _Z^2) + 1) \left(-1\right) \left(RootOf(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^4 s^2$$

$$+ 3 \operatorname{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^8 \ln(2) s^2 - 6 \operatorname{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^6 \ln(2) s^2$$

$$+ 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^8 \ln(2) s + 12 \operatorname{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^6 \ln(2) s^2$$

$$- 24 \operatorname{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^6 \ln(2) s - 132 \operatorname{RootOf}(2304 + (s^2 - 2s) _Z^{10} + 60 _Z^6 - 80 _Z^4 - 960 _Z^2)^4 \ln(2) s^2$$

$$\begin{aligned}
& -2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^4 \ln(2) s^2 + 264 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^2 \ln(2) s^2 \\
& - 960 \underline{Z}^2)^4 \ln(2) s - 288 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^2 \ln(2) s^2 \\
& + 576 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^2 \ln(2) s + 576 s^2 + 1344 s \text{RootOf}(2304 \\
& + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^2 - 672 s^2 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 \\
& - 960 \underline{Z}^2)^2 - 96 s \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^6 + 52 s^2 \text{RootOf}(2304 + (s^2 \\
& - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^4 - 104 s \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^4 \\
& - 3 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^8 s^2 + 6 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} \\
& + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^8 s + 48 s^2 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^6 \\
& + 1728 s^2 \ln(2) - 3456 s \ln(2) - 3456 s \ln\left(-1\right)
\end{aligned}$$

$$+ 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) + 1) \Big) - 1 \Big) \Bigg) + 1728 s^2 \ln(-1) \Bigg/$$

$$\left(\frac{-2}{3} \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) - 1) \right) \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) + 1) \right) - 1 \right) \Bigg) + 60 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^6$$

$$- 960 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^2 - 80 \text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10}$$

$$+ 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^4) \Big/ \left(s \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) - 2 \right)^2 \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) + 2 \right)^2 \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) - 6 \right)^2 (s - 2) \right) \Bigg]$$

$$- 2)^2 \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) - 2 \right)^2 \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2) + 6 \right)^2 (s - 2) \Bigg]$$

$$+ 2)^2 \left(\text{RootOf}(2304 + (s^2 - 2s) \underline{Z}^{10} + 60 \underline{Z}^6 - 80 \underline{Z}^4 - 960 \underline{Z}^2)^2 + 6 \right)^2 (s - 2) \Bigg], [0, 1],$$

$$["Continuous", "IDF"] \Bigg]$$

"S(x)",

$$\frac{1}{\left(1 + 3 \ln(\sqrt{x^2 + 1} + 1) - 3 \ln(x) \right)^{5/2}} \left(3 \sqrt{\ln(\sqrt{x^2 + 1} + 1) - \ln(x) - 1} \sqrt{3} \left(3 \ln(\sqrt{x^2 + 1} + 1)^2 - 6 \ln(\sqrt{x^2 + 1} + 1) \ln(x) + 3 \ln(x)^2 + 4 \ln(\sqrt{x^2 + 1} + 1) - 4 \ln(x) - 7 \right) \right)$$

$$\begin{aligned} "h(x)", \left(60 \sqrt{-1 + \operatorname{arcsinh}\left(\frac{1}{x}\right)} \left(1 + 3 \ln(\sqrt{x^2 + 1} + 1) - 3 \ln(x) \right)^{5/2} \right) \Bigg/ \left(\left(1 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right) \right)^{7/2} \sqrt{x^2 + 1} |x| \sqrt{\ln(\sqrt{x^2 + 1} + 1) - \ln(x) - 1} \left(3 \ln(\sqrt{x^2 + 1} + 1)^2 - 6 \ln(\sqrt{x^2 + 1} + 1) \ln(x) + 3 \ln(x)^2 + 4 \ln(\sqrt{x^2 + 1} + 1) - 4 \ln(x) - 7 \right) \right) \end{aligned}$$

"mean and variance", 180
$$\left[\int_0^{\frac{2e}{e^2-1}} \frac{\sqrt{-3 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1} \left(1 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)\right)^{7/2}} dx \right], 180$$

$$\left[\int_0^{\frac{2e}{e^2-1}} \frac{x \sqrt{-3 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1} \left(1 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)\right)^{7/2}} dx \right]$$

$$-32400 \left[\int_0^{\frac{2e}{e^2-1}} \frac{\sqrt{-3 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\sqrt{x^2+1} \left(1 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)\right)^{7/2}} dx \right]^2$$

$$mf := \int_0^{-\frac{2}{-e+e^{-1}}} \frac{180 x^{\sim} \sqrt{3} \sqrt{-1 + \operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\left(1 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)\right)^{7/2} \sqrt{x^2+1} |x|} dx$$

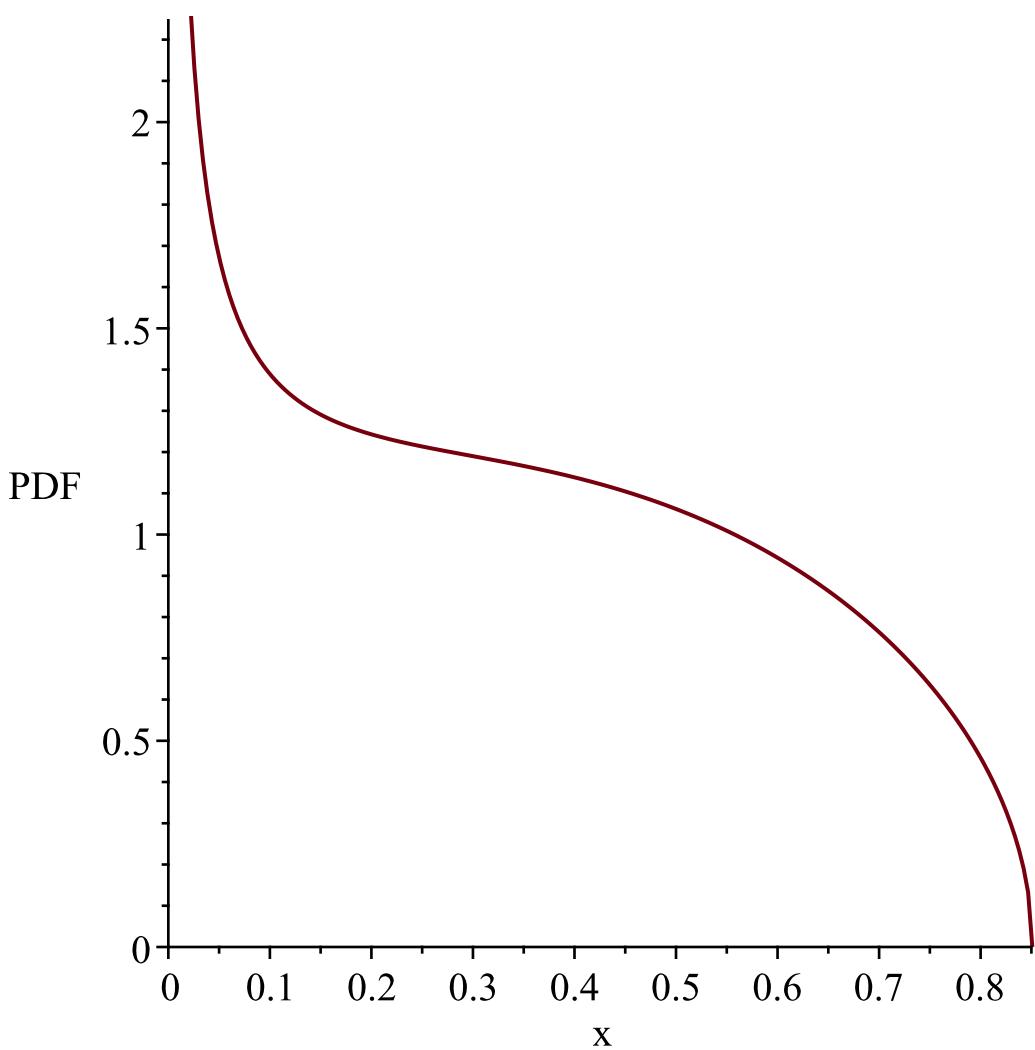
$$"MF", \int_0^{-\frac{2}{-e+e^{-1}}} \frac{180 x^{\sim} \sqrt{3} \sqrt{-1 + \operatorname{arcsinh}\left(\frac{1}{x}\right)}}{\left(1 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)\right)^{7/2} \sqrt{x^2+1} |x|} dx$$

$$"MGF", 180 \left[\int_0^{\frac{2e}{e^2-1}} \frac{e^{tx} \sqrt{-3 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)}}{x \left(1 + 3 \operatorname{arcsinh}\left(\frac{1}{x}\right)\right)^{7/2} \sqrt{x^2+1}} dx \right]$$

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

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

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*

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

Resetting high to RV's maximum support value

```
180\, , {\frac {\sqrt {3}}{\sqrt {-1+\rm{arcsinh}}}\left (x^{-1}\right )}\\
\left (1+3\,{\rm{arcsinh}}\left (x^{-1}\right )\right )^{7/2}\\
\sqrt {
{x}^2+1}\left |x\right |}\\
"i is", 18,
```

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

$$g := t \mapsto \frac{1}{\text{arcsinh}(t+1)}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y \sim \rightarrow \frac{180 \sqrt{3} \sqrt{-1 + \sinh\left(\frac{1}{y}\right)} \cosh\left(\frac{1}{y}\right)}{y^2 \left(1 + 3 \sinh\left(\frac{1}{y}\right)\right)^{7/2}} \right], \left[0, \frac{1}{\ln(1 + \sqrt{2})} \right], \right. \\ \left. ["Continuous", "PDF"] \right]$$

"l and u", 0, ∞

$$"g(x)", \frac{1}{\operatorname{arcsinh}(x+1)}, "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x+1\right)^{7/2}}, "FRV(3,4)"$$

$$"f(x)", \frac{180 \sqrt{3} \sqrt{-1 + \sinh\left(\frac{1}{x}\right)} \cosh\left(\frac{1}{x}\right)}{x^2 \left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2}}$$

$$"F(x)", \frac{1}{3} \frac{1}{\left(3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}} - 3\right)^{5/2}} \left(\sqrt{3} \left(9 \sqrt{3} e^{\frac{4}{x}} \sqrt{3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}}} - 3\right. \right. \\ \left. \left. - 27 e^{\frac{4}{x}} \sqrt{e^{\frac{2}{x}} - 2 e^{\frac{1}{x}} - 1} + 12 \sqrt{3} e^{\frac{3}{x}} \sqrt{3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}} - 3}\right. \right. \\ \left. \left. - 72 e^{\frac{3}{x}} \sqrt{e^{\frac{2}{x}} - 2 e^{\frac{1}{x}} - 1} - 14 \sqrt{3} e^{\frac{2}{x}} \sqrt{3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}} - 3}\right. \right. \\ \left. \left. + 306 e^{\frac{2}{x}} \sqrt{e^{\frac{2}{x}} - 2 e^{\frac{1}{x}} - 1} - 12 \sqrt{3} e^{\frac{1}{x}} \sqrt{3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}} - 3}\right. \right. \\ \left. \left. + 72 e^{\frac{1}{x}} \sqrt{e^{\frac{2}{x}} - 2 e^{\frac{1}{x}} - 1} + 9 \sqrt{3} \sqrt{3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}} - 3} - 27 \sqrt{e^{\frac{2}{x}} - 2 e^{\frac{1}{x}} - 1}\right) \right)$$

$$"IDF(x)", [[s \rightarrow 1 / (\ln(RootOf((243 s^2 - 486 s) Z^10 + (810 s^2 - 1620 s) Z^9 + (-135 s^2 + 270 s + 6480) Z^8 + (-2520 s^2 + 5040 s + 7200) Z^7 + (-570 s^2 + 1140 s - 64560) Z^6 + (3452 s^2 - 6904 s + 27968) Z^5 + (570 s^2 - 1140 s + 64560) Z^4 + (-2520 s^2 + 5040 s + 7200) Z^3 + (135 s^2 - 270 s - 6480) Z^2 + (810 s^2 - 1620 s) Z - 243 s^2 + 486 s)))], [0, 1], ["Continuous", "IDF"]]$$

$$"S(x)", -\frac{3 \sqrt{3} \sqrt{e^{\frac{2}{x}} - 2 e^{\frac{1}{x}} - 1} \left(8 e^{\frac{1}{x}} + 34 e^{\frac{2}{x}} - 3 e^{\frac{4}{x}} - 8 e^{\frac{3}{x}} - 3\right)}{\left(3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}} - 3\right)^{5/2}}$$

"h(x)",
$$\frac{60 \sqrt{-1 + \sinh\left(\frac{1}{x}\right)} \cosh\left(\frac{1}{x}\right) \left(3 e^{\frac{2}{x}} + 2 e^{\frac{1}{x}} - 3\right)^{5/2}}{x^2 \left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2} \sqrt{e^{\frac{2}{x}} - 2 e^{\frac{1}{x}} - 1} \left(3 e^{\frac{4}{x}} + 8 e^{\frac{3}{x}} - 34 e^{\frac{2}{x}} - 8 e^{\frac{1}{x}} + 3\right)}$$

"mean and variance", 180
$$\left[\int_0^{\frac{1}{\ln(1+\sqrt{2})}} \frac{\cosh\left(\frac{1}{x}\right) \sqrt{-3 + 3 \sinh\left(\frac{1}{x}\right)}}{x \left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2}} dx \right], 180 \left[\int_0^{\frac{1}{\ln(1+\sqrt{2})}} \frac{\cosh\left(\frac{1}{x}\right) \sqrt{-3 + 3 \sinh\left(\frac{1}{x}\right)}}{\left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2}} dx \right]^2$$

$- 32400 \left[\int_0^{\frac{1}{\ln(1+\sqrt{2})}} \frac{\cosh\left(\frac{1}{x}\right) \sqrt{-3 + 3 \sinh\left(\frac{1}{x}\right)}}{x \left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2}} dx \right]$

$mf := \int_0^{\frac{1}{\ln(1+\sqrt{2})}} \frac{180 x^{\sim} \sqrt{3} \sqrt{-1 + \sinh\left(\frac{1}{x}\right)} \cosh\left(\frac{1}{x}\right)}{x^2 \left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2}} dx$

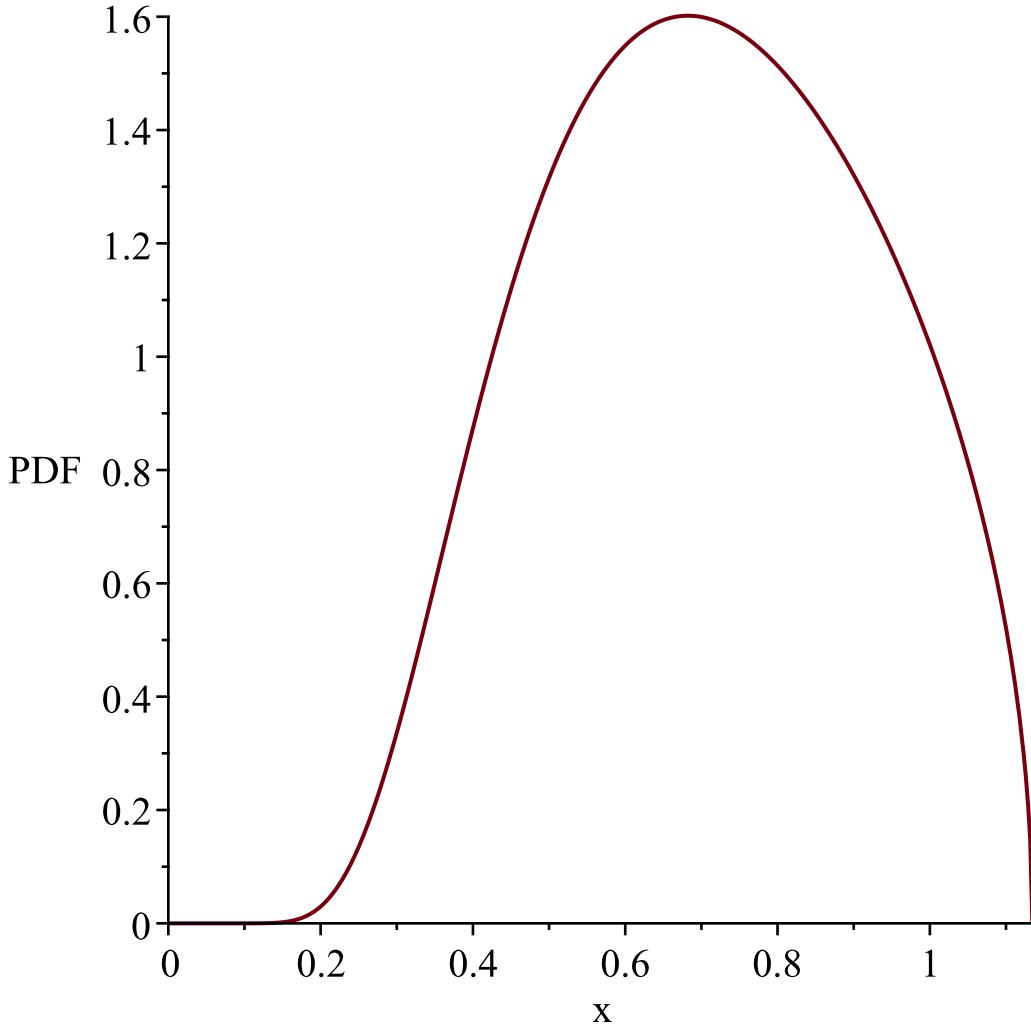
"MF", $\int_0^{\frac{1}{\ln(1+\sqrt{2})}} \frac{180 x^{\sim} \sqrt{3} \sqrt{-1 + \sinh\left(\frac{1}{x}\right)} \cosh\left(\frac{1}{x}\right)}{x^2 \left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2}} dx$

"MGF", 180
$$\left[\int_0^{\frac{1}{\ln(1+\sqrt{2})}} \frac{e^{tx} \cosh\left(\frac{1}{x}\right) \sqrt{-3 + 3 \sinh\left(\frac{1}{x}\right)}}{x^2 \left(1 + 3 \sinh\left(\frac{1}{x}\right)\right)^{7/2}} dx \right]$$

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

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

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*

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

Resetting high to RV's maximum support value

```
180\, , {\frac {\sqrt {3}}{\sqrt {-1+\sinh \left( {x}^{-1} \right) }} }\\cosh\\left( {x}^{-1} \right) \{{x}^2 \left( 1+3\,\sinh \left( {x}^{-1} \right) \right) ^{7/2}\}}\\"i is",19,\\"-----"
```

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y \sim \rightarrow \frac{180 \sqrt{3} \sqrt{\operatorname{arccsch}\left(\frac{1}{y \sim - 1}\right)}}{\left(3 \operatorname{arccsch}\left(\frac{1}{y \sim - 1}\right) + 4\right)^{7/2} \sqrt{y \sim^2 - 2 y \sim + 2}}, [1, \infty], \text{"Continuous"}, \right. \right. \\ \left. \left. \text{"PDF"} \right] \right]$$

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

$$\text{"g(x)", } \frac{1}{\operatorname{csch}(x)} + 1, \text{"base", } \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, \text{"FRV(3,4)"}$$

$$\text{"f(x)", } \frac{180 \sqrt{3} \sqrt{\operatorname{arccsch}\left(\frac{1}{x - 1}\right)}}{\left(3 \operatorname{arccsch}\left(\frac{1}{x - 1}\right) + 4\right)^{7/2} \sqrt{x^2 - 2 x + 2}}$$

$$\text{"F(x)", } 180 \sqrt{3} \left(\int_1^x \frac{\sqrt{\operatorname{arccsch}\left(\frac{1}{t - 1}\right)}}{\left(3 \operatorname{arccsch}\left(\frac{1}{t - 1}\right) + 4\right)^{7/2} \sqrt{t^2 - 2 t + 2}} dt \right)$$

$$\text{"S(x)", } 1 - 180 \sqrt{3} \left(\int_1^x \frac{\sqrt{\operatorname{arccsch}\left(\frac{1}{t - 1}\right)}}{\left(3 \operatorname{arccsch}\left(\frac{1}{t - 1}\right) + 4\right)^{7/2} \sqrt{t^2 - 2 t + 2}} dt \right)$$

$$\text{"h(x)", } - \left(180 \sqrt{3} \sqrt{\operatorname{arccsch}\left(\frac{1}{x - 1}\right)} \right) \quad \left/ \quad \left(3 \operatorname{arccsch}\left(\frac{1}{x - 1}\right) + 4 \right)^7 \right.$$

$$\left. \frac{1}{2} \sqrt{x^2 - 2 x + 2} \left(180 \sqrt{3} \left(\int_1^x \frac{\sqrt{\operatorname{arccsch}\left(\frac{1}{t - 1}\right)}}{\left(3 \operatorname{arccsch}\left(\frac{1}{t - 1}\right) + 4\right)^{7/2} \sqrt{t^2 - 2 t + 2}} dt \right) - 1 \right) \right)$$

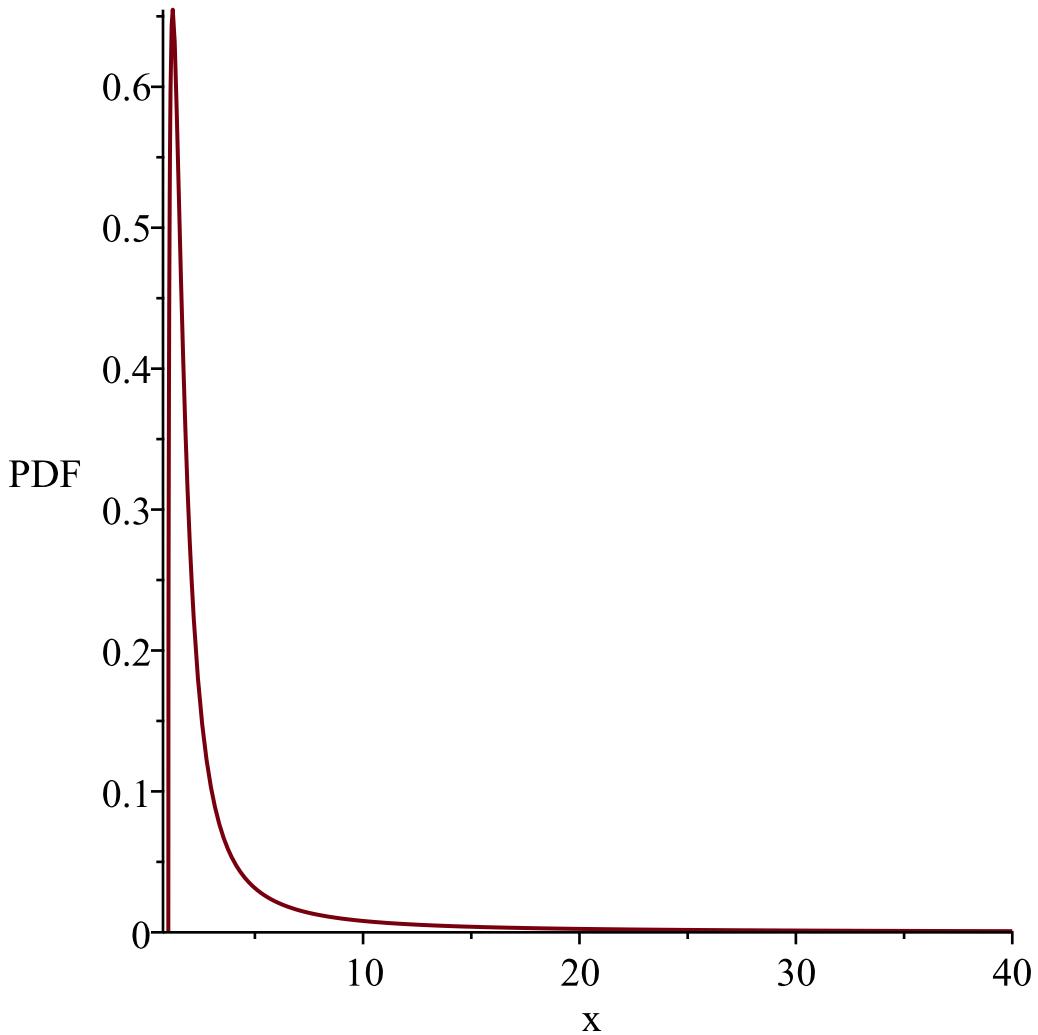
$$\text{"mean and variance", } \infty, \text{undefined}$$

$$\begin{aligned}
mf &:= \infty \\
"MF", \infty & \\
"MGF", \int_1^{\infty} & \frac{180 e^{tx} \sqrt{3} \sqrt{\operatorname{arccsch}\left(\frac{1}{x-1}\right)}}{\left(3 \operatorname{arccsch}\left(\frac{1}{x-1}\right) + 4\right)^{7/2} \sqrt{x^2 - 2x + 2}} dx
\end{aligned}$$

*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

```
180,\,{\frac {\sqrt {3}}{\sqrt {\left(3\operatorname{arccsch}\left(\frac {1}{x-1}\right)^{-1}\right)^{3}}}}\left(3\operatorname{arccsch}\left(\frac {1}{x-1}\right)^{-1}+4\right)^{7/2}
```

```

^ {-1}
\right) + 4 \right)^ {7/2} \sqrt{ \{ \{ x \} ^ {2} - 2 \} , x + 2 \} } \}
"i is", 20,
"
-----
"
g := t → tanh(  $\frac{1}{t}$  )
l := 0
u := ∞
Temp := 
$$\left[ \left[ y \rightsquigarrow - \frac{180 \sqrt{3} \sqrt{\frac{1}{\operatorname{arctanh}(y)}} \operatorname{arctanh}(y)}{(3 + 4 \operatorname{arctanh}(y))^3 \sqrt{\frac{3 + 4 \operatorname{arctanh}(y)}{\operatorname{arctanh}(y)}} (y^2 - 1)} \right], [0, 1],$$

["Continuous", "PDF"]
"
"l and u", 0, ∞
"g(x)", tanh(  $\frac{1}{x}$  ), "base",  $\frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}$ , "FRV(3,4)"
"f(x)", - 
$$\frac{180 \sqrt{3} \sqrt{\frac{1}{\operatorname{arctanh}(x)}} \operatorname{arctanh}(x)}{(3 + 4 \operatorname{arctanh}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}} (x^2 - 1)}$$

"F(x)", - 
$$\left( 30 \sqrt{\frac{1}{\operatorname{arctanh}(x)}} \sqrt{3} \operatorname{arctanh}(x) - 16 \sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}} \operatorname{arctanh}(x)^2 + 9 \sqrt{\frac{1}{\operatorname{arctanh}(x)}} \sqrt{3} - 24 \sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}} \operatorname{arctanh}(x) - 9 \sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}} \right) \left/ \left( \sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}} (9 + 24 \operatorname{arctanh}(x) + 16 \operatorname{arctanh}(x)^2) \right) \right.$$

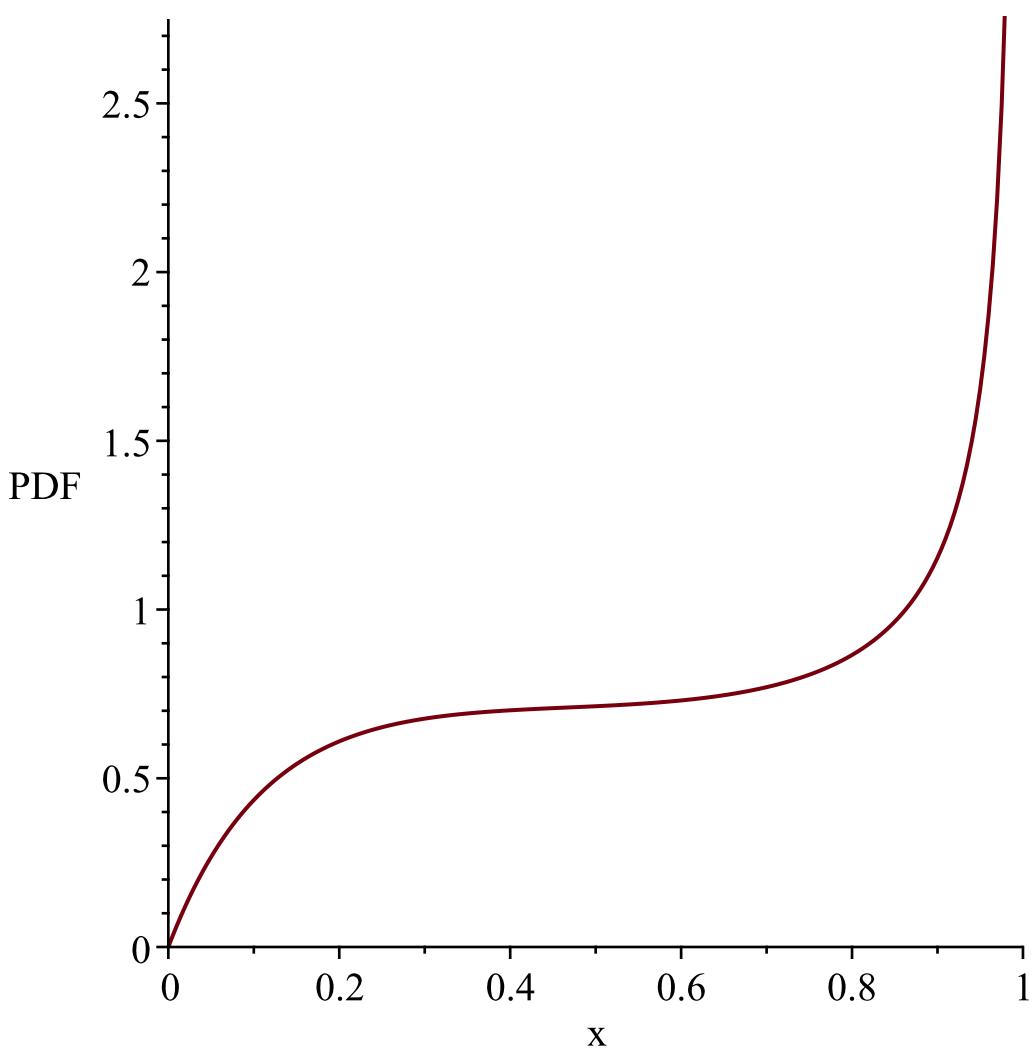
"IDF(x)", [[tanh@ (s → RootOf( (1024 s^2 - 2048 s + 1024) _Z^5 + (3840 s^2 - 7680 s + 3840) _Z^4 + (5760 s^2 - 11520 s + 5760) _Z^3 + (4320 s^2 - 8640 s + 1620) _Z^2 + (1620 s^2 - 3240 s) _Z + 243 s^2 - 486 s) )]], [0, 1], ["Continuous", "IDF"]]
"S(x)", 
$$\frac{3 \sqrt{\frac{1}{\operatorname{arctanh}(x)}} \sqrt{3} (10 \operatorname{arctanh}(x) + 3)}{\sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}} (9 + 24 \operatorname{arctanh}(x) + 16 \operatorname{arctanh}(x)^2)}$$


```

$$\begin{aligned}
& \text{"h(x)", } -\frac{60 \operatorname{arctanh}(x)}{(10 \operatorname{arctanh}(x) + 3) (x^2 - 1) (3 + 4 \operatorname{arctanh}(x))} \\
& \text{"mean and variance", } -180 \sqrt{3} \left(\int_0^1 \frac{x \operatorname{arctanh}(x)}{(3 + 4 \operatorname{arctanh}(x))^{7/2} (x^2 - 1)} dx \right), -180 \sqrt{3} \left(\right. \\
& \left. \int_0^1 \frac{x^2 \operatorname{arctanh}(x)}{(3 + 4 \operatorname{arctanh}(x))^{7/2} (x^2 - 1)} dx \right) - 97200 \left(\int_0^1 \frac{x \operatorname{arctanh}(x)}{(3 + 4 \operatorname{arctanh}(x))^{7/2} (x^2 - 1)} \right. \\
& \left. dx \right)^2 \\
& mf := \int_0^1 \left(-\frac{180 x^r \sqrt{3} \sqrt{\frac{1}{\operatorname{arctanh}(x)} \operatorname{arctanh}(x)}}{(3 + 4 \operatorname{arctanh}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)} (x^2 - 1)}} \right) dx \\
& \text{"MF", } \int_0^1 \left(-\frac{180 x^r \sqrt{3} \sqrt{\frac{1}{\operatorname{arctanh}(x)} \operatorname{arctanh}(x)}}{(3 + 4 \operatorname{arctanh}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arctanh}(x)}{\operatorname{arctanh}(x)} (x^2 - 1)}} \right) dx \\
& \text{"MGF", } -180 \sqrt{3} \left(\int_0^1 \frac{e^{tx} \operatorname{arctanh}(x)}{(3 + 4 \operatorname{arctanh}(x))^{7/2} (x^2 - 1)} dx \right)
\end{aligned}$$

*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

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-180\,,{\frac {\sqrt{ \left( \rm{arctanh} \left( x \right) \right) ^{-1}}}{\sqrt{3} \rm{arctanh} \left( x \right) }{ \left( 3+4\,,{\rm arctanh} \left( x \right) \right) ^{3}} \left( {x}^{2}-1 \right) }{\frac {1}{\sqrt{ \left( \frac {3+4\,,{\rm arctanh} \left( x \right) }{\rm{arctanh} \left( x \right) } \right) ^{2}}}}}
"i is",21,
"-----"
-----"

```

$$\begin{aligned}
g &:= t \mapsto \operatorname{csch} \left(\frac{1}{t} \right) \\
l &:= 0 \\
u &:= \infty
\end{aligned}$$

$$Temp := \left[\left[y \rightarrow \frac{180 \sqrt{3} \sqrt{\operatorname{arccsch}(y)}}{(3 + 4 \operatorname{arccsch}(y))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(y)}{\operatorname{arccsch}(y)}} \sqrt{y^2 + 1} |y|} \right], [0, \infty], \right.$$

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

"l and u", 0, ∞

$$\text{"g(x)", } \operatorname{csch}\left(\frac{1}{x}\right), \text{"base", } \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1\right)^{7/2}}, \text{"FRV(3,4)"}$$

$$\text{"f(x)", } \frac{180 \sqrt{3} \sqrt{\operatorname{arccsch}(x)}}{(3 + 4 \operatorname{arccsch}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(x)}{\operatorname{arccsch}(x)}} \sqrt{x^2 + 1} |x|}$$

$$\text{"F(x)", } 180 \sqrt{3} \left(\int_0^x \frac{\sqrt{\operatorname{arccsch}(t)}}{(3 + 4 \operatorname{arccsch}(t))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(t)}{\operatorname{arccsch}(t)}} \sqrt{t^2 + 1} |t|} dt \right)$$

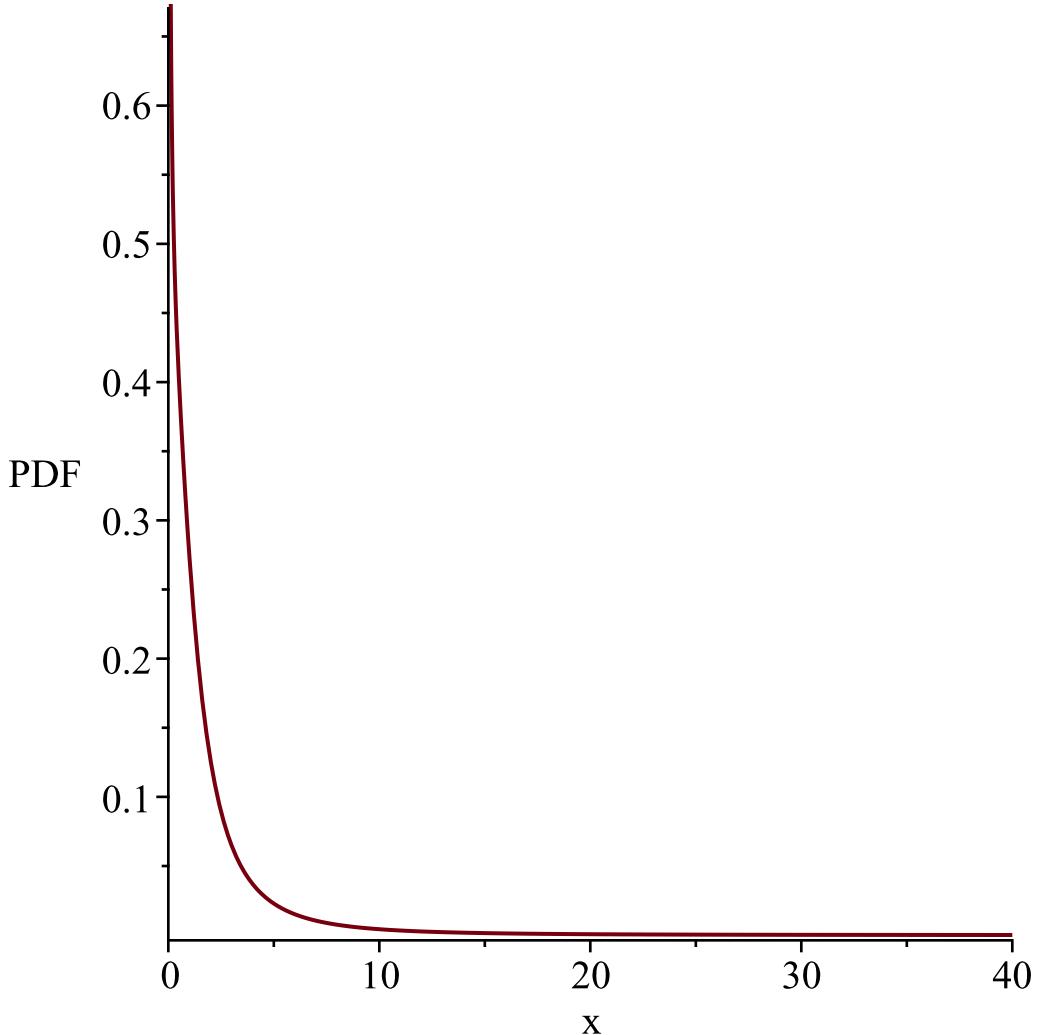
$$\text{"S(x)", } 1 - 180 \sqrt{3} \left(\int_0^x \frac{\sqrt{\operatorname{arccsch}(t)}}{(3 + 4 \operatorname{arccsch}(t))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(t)}{\operatorname{arccsch}(t)}} \sqrt{t^2 + 1} |t|} dt \right)$$

$$\text{"h(x)", } - (180 \sqrt{3} \sqrt{\operatorname{arccsch}(x)}) \left(\int_0^x \frac{\sqrt{\operatorname{arccsch}(t)}}{(3 + 4 \operatorname{arccsch}(t))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(t)}{\operatorname{arccsch}(t)}} \sqrt{t^2 + 1} |t|} dt \right) - 1$$

$$+ 4 \operatorname{arccsch}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(x)}{\operatorname{arccsch}(x)}} \sqrt{x^2 + 1} |x| \left(180 \sqrt{3} \left(\int_0^x \frac{\sqrt{\operatorname{arccsch}(t)}}{(3 + 4 \operatorname{arccsch}(t))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(t)}{\operatorname{arccsch}(t)}} \sqrt{t^2 + 1} |t|} dt \right) - 1 \right)$$

$$\text{"mean and variance", } \int_0^\infty \frac{180 \sqrt{3} \sqrt{\operatorname{arccsch}(x)}}{(3 + 4 \operatorname{arccsch}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(x)}{\operatorname{arccsch}(x)}} \sqrt{x^2 + 1}} dx, \infty$$

$$\begin{aligned}
& - \left(\int_0^\infty \frac{180 \sqrt{3} \sqrt{\operatorname{arccsch}(x)}}{(3 + 4 \operatorname{arccsch}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(x)}{\operatorname{arccsch}(x)}} \sqrt{x^2 + 1}} dx \right)^2 \\
& mf := \int_0^\infty \frac{180 x^{\sim} \sqrt{3} \sqrt{\operatorname{arccsch}(x)}}{(3 + 4 \operatorname{arccsch}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(x)}{\operatorname{arccsch}(x)}} \sqrt{x^2 + 1} |x|} dx \\
& "MF", \int_0^\infty \frac{180 x^{\sim} \sqrt{3} \sqrt{\operatorname{arccsch}(x)}}{(3 + 4 \operatorname{arccsch}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(x)}{\operatorname{arccsch}(x)}} \sqrt{x^2 + 1} |x|} dx \\
& "MGF", \int_0^\infty \frac{180 e^{tx} \sqrt{3} \sqrt{\operatorname{arccsch}(x)}}{(3 + 4 \operatorname{arccsch}(x))^3 \sqrt{\frac{3 + 4 \operatorname{arccsch}(x)}{\operatorname{arccsch}(x)}} \sqrt{x^2 + 1} x} dx
\end{aligned}$$



180\, ,{\frac {\sqrt {3}}{\sqrt { \{ \operatorname{arccsch} \left(x \right) \} \{ \operatorname{arccsch} \left(x \right) \} }}} \{

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\left( 3+4\,{\rm arccsch} \left( x \right) \right)^3\sqrt{ \left( x \right)^2+1} \\
\left( x \right) \left( \frac{1}{\sqrt{ \left( 3+4\,{\rm arccsch} \left( x \right) \right)^3+1}} \right) \\
"i is", 22,
"
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$$g := t \rightarrow \text{arccsch} \left(\frac{1}{t} \right)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y \rightarrow \frac{180 \sqrt{3} \sqrt{\sinh(y)}}{(3 \sinh(y) + 4)^{7/2}} \right], [0, \infty], ["Continuous", "PDF"] \right]$$

$$"l and u", 0, \infty$$

$$"g(x)", \text{arccsch} \left(\frac{1}{x} \right), "base", \frac{45}{64} \frac{\sqrt{3} \sqrt{4} \sqrt{x}}{\left(\frac{3}{4} x + 1 \right)^{7/2}}, "FRV(3,4)"$$

$$"f(x)", \frac{180 \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}}$$

$$"F(x)", -\frac{3 \sqrt{3} \sqrt{e^{2x} - 1} (-3 e^{4x} - 20 e^{3x} + 6 e^{2x} + 20 e^x - 3)}{(3 e^{2x} + 8 e^x - 3)^{5/2}}$$

$$"IDF(x)", [[\ln @ (s \rightarrow \text{RootOf}((243 s^2 - 243) Z^10 + (3240 s^2 - 3240) Z^9 + (16065 s^2 - 9585) Z^8 + (33120 s^2 + 12960) Z^7 + (12030 s^2 + 29970) Z^6 + (-39952 s^2 - 19440) Z^5 + (-12030 s^2 - 29970) Z^4 + (33120 s^2 + 12960) Z^3 + (-16065 s^2 + 9585) Z^2 + (3240 s^2 - 3240) Z - 243 s^2 + 243))], [0, 1], ["Continuous", "IDF"]]$$

$$"S(x)", \frac{1}{(3 e^{2x} + 8 e^x - 3)^{5/2}} (60 \sqrt{3} \sqrt{e^{2x} - 1} e^x + 18 \sqrt{3} \sqrt{e^{2x} - 1} e^{2x} - 9 \sqrt{3} \sqrt{e^{2x} - 1} e^{4x} - 60 \sqrt{3} \sqrt{e^{2x} - 1} e^{3x} - 9 \sqrt{3} \sqrt{e^{2x} - 1} e^{4x} \sqrt{3 e^{2x} + 8 e^x - 3} + 46 e^{2x} \sqrt{3 e^{2x} + 8 e^x - 3} + 9 e^{4x} \sqrt{3 e^{2x} + 8 e^x - 3} + 48 e^{3x} \sqrt{3 e^{2x} + 8 e^x - 3} + 9 \sqrt{3 e^{2x} + 8 e^x - 3})$$

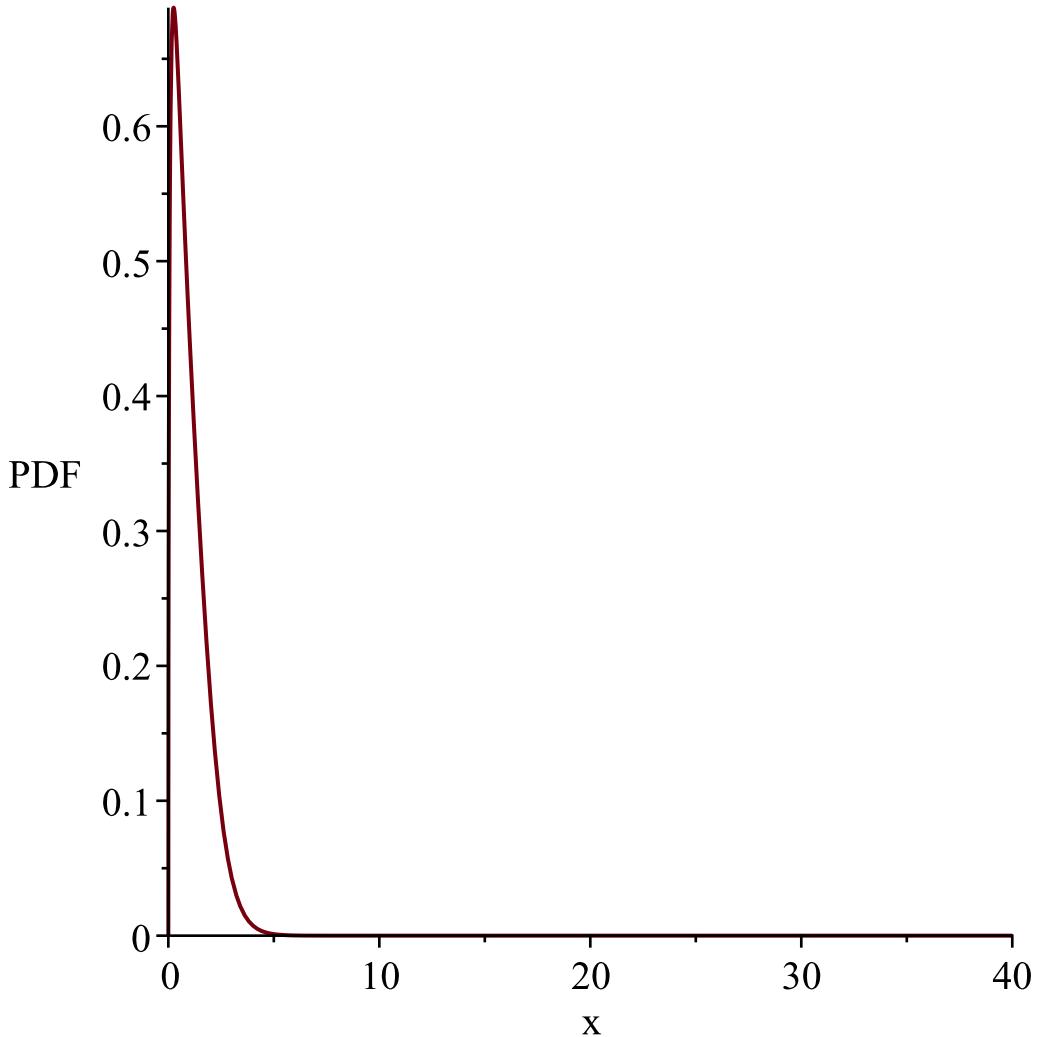
$$"h(x)", \left(180 \sqrt{3} \sqrt{\sinh(x)} \cosh(x) (3 e^{2x} + 8 e^x - 3)^{5/2} \right) / \left((3 \sinh(x) + 4)^7 / 2 \left(60 \sqrt{3} \sqrt{e^{2x} - 1} e^x + 18 \sqrt{3} \sqrt{e^{2x} - 1} e^{2x} - 9 \sqrt{3} \sqrt{e^{2x} - 1} e^{4x} - 60 \sqrt{3} \sqrt{e^{2x} - 1} e^{3x} - 9 \sqrt{3} \sqrt{e^{2x} - 1} e^{4x} \sqrt{3 e^{2x} + 8 e^x - 3} + 46 e^{2x} \sqrt{3 e^{2x} + 8 e^x - 3} + 9 e^{4x} \sqrt{3 e^{2x} + 8 e^x - 3} + 48 e^{3x} \sqrt{3 e^{2x} + 8 e^x - 3} + 9 \sqrt{3 e^{2x} + 8 e^x - 3} \right) \right)$$

"mean and variance", $\int_0^\infty \frac{180 x \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx, \int_0^\infty \frac{180 x^2 \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx - \left(\int_0^\infty \frac{180 x \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx \right)^2$

$mf := \int_0^\infty \frac{180 x^r \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx$

"MF", $\int_0^\infty \frac{180 x^r \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx$

"MGF", $\int_0^\infty \frac{180 e^{tx} \sqrt{3} \sqrt{\sinh(x)} \cosh(x)}{(3 \sinh(x) + 4)^{7/2}} dx$



```
180,\, {\frac {\sqrt {3}}{\sqrt {\sinh \left( x \right) }}} \cosh \left( x
```

$\left. \frac{d}{dx} \left(\sinh^{-1}(x) + 4x^{\frac{7}{2}} \right) \right|_{x=3}$