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

$$\frac{a\sim\,(a\sim x)^{b\sim-1}\,\mathrm{e}^{-a\sim x}}{\Gamma(b\sim)}$$

"i is", 1,
" --"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{1}{2}\,\frac{a\sim^{b\sim}\,y\sim^{\frac{1}{2}b\sim-1}\,\mathrm{e}^{-a\sim\sqrt{y\sim}}}{\Gamma(b\sim)}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

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

$$\text{"g(x)"}, x^2, \text{"base"}, \frac{a\sim\,(a\sim x)^{b\sim-1}\,\mathrm{e}^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{1}{2}\,\frac{a\sim^{b\sim}\,x^{\frac{1}{2}b\sim-1}\,\mathrm{e}^{-a\sim\sqrt{x}}}{\Gamma(b\sim)}$$

"i is", 2,
" --"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{2\,a\sim^{b\sim}\,(y\sim^2)^{b\sim}\,\mathrm{e}^{-a\sim y\sim^2}}{y\sim\,\Gamma(b\sim)}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

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

$$\text{"g(x)"}, \sqrt{x}, \text{"base"}, \frac{a\sim\,(a\sim x)^{b\sim-1}\,\mathrm{e}^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{2\,a\sim^{b\sim}\,(x^2)^{b\sim}\,\mathrm{e}^{-a\sim x^2}}{x\,\Gamma(b\sim)}$$

"i is", 3,
" --"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{a\sim^{b\sim} \left(\frac{1}{y\sim}\right)^{b\sim} e^{-\frac{a\sim}{y\sim}}}{y\sim\,\Gamma(b\sim)}\right], [0, \infty], ["Continuous", "PDF"]\right]$$

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

$$\text{"g(x)"}, \frac{1}{x}, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{a\sim^{b\sim} \left(\frac{1}{x}\right)^{b\sim} e^{-\frac{a\sim}{x}}}{x\,\Gamma(b\sim)}$$

"i is", 4,

" --

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

$$l := 0$$

$$u := \infty$$

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

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

$$\text{"g(x)"}, \arctan(x), \text{"base"}, \frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{a\sim^{b\sim} \tan(x)^{b\sim -1} e^{-a\sim \tan(x)} \left(1 + \tan(x)^2\right)}{\Gamma(b\sim)}$$

"i is", 5,

" --

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$$g := t \rightarrow e^t$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{a\sim^{b\sim} \ln(y\sim)^{b\sim -1} y\sim^{-a\sim -1}}{\Gamma(b\sim)}\right], [1, \infty], ["Continuous", "PDF"]\right]$$

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

$$\text{"g(x)"}, e^x, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{a\sim^{b\sim} \ln(x)^{b\sim -1} x^{-a\sim -1}}{\Gamma(b\sim)}$$

"i is", 6,

" --

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$$g := t \to \ln(t)$$
$$l := 0$$
$$u := \infty$$
$$Temp := \left[\left[y\sim \to \frac{a\sim^{b\sim}\, e^{-a\sim e^{y\sim} + y\sim b\sim}}{\Gamma(b\sim)}\right], [-\infty, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$
$$\text{"l and u"}, 0, \infty$$
$$\text{"g(x)"}, \ln(x), \text{"base"}, \frac{a\sim (a\sim x)^{b\sim - 1}\, e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$
$$\text{"f(x)"}, \frac{a\sim^{b\sim}\, e^{-a\sim e^{x} + x b\sim}}{\Gamma(b\sim)}$$

"i is", 7,

" --
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$$g := t \to e^{-t}$$
$$l := 0$$
$$u := \infty$$
$$Temp := \left[\left[y\sim \to \frac{a\sim^{b\sim}\, (-\ln(y\sim))^{b\sim - 1}\, y\sim^{a\sim - 1}}{\Gamma(b\sim)}\right], [0, 1], [\text{"Continuous"}, \text{"PDF"}]\right]$$
$$\text{"l and u"}, 0, \infty$$
$$\text{"g(x)"}, e^{-x}, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim - 1}\, e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$
$$\text{"f(x)"}, \frac{a\sim^{b\sim}\, (-\ln(x))^{b\sim - 1}\, x^{a\sim - 1}}{\Gamma(b\sim)}$$

"i is", 8,

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

$$g := t \to -\ln(t)$$
$$l := 0$$
$$u := \infty$$
$$Temp := \left[\left[y\sim \to \frac{a\sim^{b\sim}\, e^{-a\sim e^{-y\sim} - y\sim b\sim}}{\Gamma(b\sim)}\right], [-\infty, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$
$$\text{"l and u"}, 0, \infty$$
$$\text{"g(x)"}, -\ln(x), \text{"base"}, \frac{a\sim (a\sim x)^{b\sim - 1}\, e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$
$$\text{"f(x)"}, \frac{a\sim^{b\sim}\, e^{-a\sim e^{-x} - x b\sim}}{\Gamma(b\sim)}$$

"i is", 9,

" --

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

$$l := 0$$

$$u := \infty$$

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

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

$$\text{"g(x)"}, \ln(x+1), \text{"base"}, \frac{a\sim (a\sim x)^{b\sim-1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{a\sim^{b\sim}\left(e^{x}-1\right)^{b\sim-1} e^{-a\sim e^{x}+a\sim+x}}{\Gamma(b\sim)}$$

"i is", 10,

" --

----------"

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

$$l := 0$$

$$u := \infty$$

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

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

$$\text{"g(x)"}, \frac{1}{\ln(x+2)}, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim-1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{a\sim^{b\sim}\left(e^{\frac{1}{x}}-2\right)^{b\sim-1} e^{-\frac{a\sim x e^{\frac{1}{x}}-2a\sim x-1}{x}}}{\Gamma(b\sim)\, x^{2}}$$

"i is", 11,

" --

----------"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow -\frac{a\sim^{b\sim}\operatorname{arctanh}(y\sim)^{b\sim-1}\,\mathrm{e}^{-a\sim\operatorname{arctanh}(y\sim)}}{(y\sim^2-1)\,\Gamma(b\sim)}\right], [0, 1], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\tanh(x)$, "base", $\frac{a\sim\,(a\sim x)^{b\sim-1}\,\mathrm{e}^{-a\sim x}}{\Gamma(b\sim)}$, "GammaRV(a,b)"

"f(x)", $-\frac{a\sim^{b\sim}\operatorname{arctanh}(x)^{b\sim-1}\,\mathrm{e}^{-a\sim\operatorname{arctanh}(x)}}{(x^2-1)\,\Gamma(b\sim)}$

"i is", 12,

" ---"

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

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

"l and u", 0, ∞

"g(x)", $\sinh(x)$, "base", $\frac{a\sim\,(a\sim x)^{b\sim-1}\,\mathrm{e}^{-a\sim x}}{\Gamma(b\sim)}$, "GammaRV(a,b)"

"f(x)", $\frac{a\sim^{b\sim}\operatorname{arcsinh}(x)^{b\sim-1}\,\mathrm{e}^{-a\sim\operatorname{arcsinh}(x)}}{\Gamma(b\sim)\sqrt{x^2+1}}$

"i is", 13,

" ---"

$$g := t \rightarrow \operatorname{arcsinh}(t)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{a\sim^{b\sim}\sinh(y\sim)^{b\sim-1}\,\mathrm{e}^{-a\sim\sinh(y\sim)}\cosh(y\sim)}{\Gamma(b\sim)}\right], [0, \infty], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\operatorname{arcsinh}(x)$, "base", $\frac{a\sim\,(a\sim x)^{b\sim-1}\,\mathrm{e}^{-a\sim x}}{\Gamma(b\sim)}$, "GammaRV(a,b)"

"f(x)", $\frac{a\sim^{b\sim}\sinh(x)^{b\sim-1}\,\mathrm{e}^{-a\sim\sinh(x)}\cosh(x)}{\Gamma(b\sim)}$

"i is", 14,

" ---"

$$g := t \rightarrow \operatorname{csch}(t+1)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{a\sim^{b\sim} \left(-1+\operatorname{arccsch}(y\sim)\right)^{b\sim - 1} e^{-a\sim \left(-1+\operatorname{arccsch}(y\sim)\right)}}{\sqrt{y\sim^2+1}\ \Gamma(b\sim)\ |y\sim|}\right], \left[0, \frac{2}{e - e^{-1}}\right],\right.$$

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

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

$$"\text{g(x)}", \operatorname{csch}(x+1), "\text{base}", \frac{a\sim (a\sim x)^{b\sim - 1} e^{-a\sim x}}{\Gamma(b\sim)}, "\text{GammaRV(a,b)}"$$

$$"\text{f(x)}", \frac{a\sim^{b\sim} \left(-1+\operatorname{arccsch}(x)\right)^{b\sim - 1} e^{-a\sim \left(-1+\operatorname{arccsch}(x)\right)}}{\sqrt{x^2+1}\ \Gamma(b\sim)\ |x|}$$

"i is", 15,

" --"

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

$$l := 0$$

$$u := \infty$$

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

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

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

$$"\text{g(x)}", \operatorname{arccsch}(x+1), "\text{base}", \frac{a\sim (a\sim x)^{b\sim - 1} e^{-a\sim x}}{\Gamma(b\sim)}, "\text{GammaRV(a,b)}"$$

$$"\text{f(x)}", -\frac{a\sim^{b\sim} \left(-\frac{\sinh(x) - 1}{\sinh(x)}\right)^{b\sim} e^{\frac{a\sim (\sinh(x) - 1)}{\sinh(x)}} \cosh(x)}{\Gamma(b\sim)\ (\sinh(x) - 1)\ \sinh(x)}$$

"i is", 16,

" --"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{a\sim^{b\sim} \left(-1+\operatorname{arctanh}\left(\frac{1}{y\sim}\right)\right)^{b\sim - 1} e^{-a\sim \left(-1+\operatorname{arctanh}\left(\frac{1}{y\sim}\right)\right)}}{\Gamma(b\sim)\ \left(y\sim^2 - 1\right)}\right], \left[1, \frac{e+e^{-1}}{e-e^{-1}}\right],\right.$$

$$["Continuous", "PDF"]$$

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

$$\text{"g(x)"}, \frac{1}{\tanh(x+1)}, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

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

"i is", 17,

" ---"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{a\sim^{b\sim} \left(-1+\operatorname{arcsinh}\left(\frac{1}{y\sim}\right)\right)^{b\sim -1} e^{-a\sim \left(-1+\operatorname{arcsinh}\left(\frac{1}{y\sim}\right)\right)}}{\sqrt{y\sim^2+1}\,\Gamma(b\sim)\,|y\sim|}\right], \left[0, \frac{2}{e-e^{-1}}\right],\right.$$

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

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

$$\text{"g(x)"}, \frac{1}{\sinh(x+1)}, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

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

"i is", 18,

" ---"

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

$$l := 0$$

$$u := \infty$$

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

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

$$\text{"g(x)"}, \frac{1}{\operatorname{arcsinh}(x+1)}, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim - 1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

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

"i is", 19,

" ---"

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

$$l := 0$$

$$u := \infty$$

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

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

$$\text{"g(x)"}, \frac{1}{\operatorname{csch}(x)} + 1, \text{"base"}, \frac{a\sim (a\sim x)^{b\sim - 1} e^{-a\sim x}}{\Gamma(b\sim)}, \text{"GammaRV(a,b)"}$$

$$\text{"f(x)"}, \frac{a\sim^{b\sim} \operatorname{arccsch}\left(\frac{1}{x-1}\right)^{b\sim - 1} e^{-a\sim \operatorname{arccsch}\left(\frac{1}{x-1}\right)}}{\sqrt{x^2 - 2\, x + 2}\ \Gamma(b\sim)}$$

"i is", 20,

" ---"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow -\frac{a\sim^{b\sim}\left(\frac{1}{\operatorname{arctanh}(y\sim)}\right)^{b\sim} e^{-\frac{a\sim}{\operatorname{arctanh}(y\sim)}}}{\operatorname{arctanh}(y\sim)\,(y\sim^2-1)\,\Gamma(b\sim)}\right], [0, 1], ["Continuous", "PDF"]\right]$$

"l and u", 0, ∞

"g(x)", $\tanh\left(\frac{1}{x}\right)$, "base", $\frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}$, "GammaRV(a,b)"

"f(x)", $-\frac{a\sim^{b\sim}\left(\frac{1}{\operatorname{arctanh}(x)}\right)^{b\sim} e^{-\frac{a\sim}{\operatorname{arctanh}(x)}}}{\operatorname{arctanh}(x)\,(x^2-1)\,\Gamma(b\sim)}$

"i is", 21,
" --
----------"

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

$$l := 0$$

$$u := \infty$$

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

"l and u", 0, ∞

"g(x)", $\operatorname{csch}\left(\frac{1}{x}\right)$, "base", $\frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}$, "GammaRV(a,b)"

"f(x)", $\frac{a\sim^{b\sim} \operatorname{arccsch}(x)^{-b\sim -1} e^{-\frac{a\sim}{\operatorname{arccsch}(x)}}}{\sqrt{x^2+1}\,\Gamma(b\sim)\,|x|}$

"i is", 22,
" --
----------"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{a\sim^{b\sim} \sinh(y\sim)^{b\sim -1} e^{-a\sim \sinh(y\sim)} \cosh(y\sim)}{\Gamma(b\sim)}\right], [0, \infty], ["Continuous", "PDF"]\right]$$

"l and u", 0, ∞

"g(x)", $\operatorname{arccsch}\left(\frac{1}{x}\right)$, "base", $\frac{a\sim (a\sim x)^{b\sim -1} e^{-a\sim x}}{\Gamma(b\sim)}$, "GammaRV(a,b)"

(1)

$$"\mathrm{f(x)}", \frac{a\sim^{b\sim} \sinh(x)^{b\sim - 1} \mathrm{e}^{-a\sim \sinh(x)} \cosh(x)}{\Gamma(b\sim)} \tag{1}$$