

```

filename := "C:/LatexOutput/Beta.tex"
12 x (1 - x)2
"i is", 1,
"
-----"
-----"
g := t → t2
l := 0
u := ∞
Temp := [[y → 6 (-1 + √y)2], [0, 1], ["Continuous", "PDF"]]
"l and u", 0, ∞
"g(x)", x2, "base", 12 x (1 - x)2, "BetaRV(2,3)"
"f(x)", 6 (-1 + √x)2
"F(x)", 3 x2 - 8 x3/2 + 6 x
"IDF(x)", [[s → RootOf(3 Z4 - 8 Z3 + 6 Z2 - s)2], [0, 1], ["Continuous", "IDF"]]]
"S(x)", 1 - 3 x2 + 8 x3/2 - 6 x
"h(x)", 6 (-1 + √x)2
1 - 3 x2 + 8 x3/2 - 6 x
"mean and variance", 1/5, 11/350
"MF", 24
(2 r~ + 2) (2 r~ + 3) (2 r~ + 4)
"MGF", 6 (sqrt(π) erf(sqrt(-t)) t - et sqrt(-t) + (-t)3/2 + sqrt(-t))
(-t)5/2
WARNING(PlotDist): High value provided by user, 40
is greater than maximum support value of the random
variable, 1
Resetting high to RV's maximum support value
WARNING(PlotDist): High value provided by user, 40
is greater than maximum support value of the random
variable, 1
Resetting high to RV's maximum support value
6\, \left( -1+\sqrt{ \mathfrak{x} } \right) ^{2\,}
"i is", 2,
"
-----"
-----"
g := t → √t
l := 0
u := ∞

```

```

Temp := [ [y~→24 y~³ (y~² - 1)²], [0, 1], ["Continuous", "PDF"] ]
        "l and u", 0, ∞
        "g(x)", √x, "base", 12 x (1 - x)², "BetaRV(2,3)"
        "f(x)", 24 x³ (x² - 1)²
        "F(x)", 3 x⁸ - 8 x⁶ + 6 x⁴
>IDF(x), [ [s→√ RootOf(3 _Z⁴ - 8 _Z³ + 6 _Z² - s)], [0, 1], ["Continuous", "IDF"] ]
        "S(x)", -3 x⁸ + 8 x⁶ - 6 x⁴ + 1
        "h(x)", - 24 x³
            3 x⁴ - 2 x² - 1
        "mean and variance", 64
            105, 314
            11025
        "MF", 192
            r~³ + 18 r~² + 104 r~ + 192
"MGF",
48 (4 e⁰ t⁵ - 48 e⁰ t⁴ + 300 e⁰ t³ + 3 t⁴ - 1140 e⁰ t² + 2520 e⁰ t - 120 t² - 2520 e⁰ t + 2520)
     t⁸
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
24\, {x}^3 \left( {x}^2-1 \right) ^2
"i is", 3,
" -----
-----
"
g := t→ 1
      t
l := 0
u := ∞
Temp := [ [y~→ 12 (y~ - 1)²
            y~⁵], [1, ∞], ["Continuous", "PDF"] ]
        "l and u", 0, ∞
        "g(x)", 1
            x, "base", 12 x (1 - x)², "BetaRV(2,3)"
        "f(x)", 12 (x - 1)²
            x⁵

```

$$\text{"F(x)"}, \frac{x^4 - 6x^2 + 8x - 3}{x^4}$$

$$\text{"IDF(x)"}, [[s \rightarrow \text{RootOf}(3 + (s - 1) \underline{Z}^4 + 6 \underline{Z}^2 - 8 \underline{Z})], [0, 1], ["Continuous", "IDF"]]$$

$$\text{"S(x)"}, \frac{6x^2 - 8x + 3}{x^4}$$

$$\text{"h(x)"}, \frac{12(x - 1)^2}{x(6x^2 - 8x + 3)}$$

$$\text{"mean and variance"}, 4, \infty$$

$$\text{"MF"}, \lim_{x \rightarrow \infty} \frac{1}{(-2 + r) (-3 + r) (r - 4)} (12 (x^{r-4} r^2 x^2 - 2 x^{r-4} r^2 x - 7 x^{r-4} r^2 x^2 + r^2 x^{r-4} + 12 x^{r-4} r x + 12 x^{r-4} x^2 - 5 r x^{r-4} - 16 x^{r-4} x + 6 x^{r-4} - 2))$$

$$\text{"MGF"}, \lim_{x \rightarrow \infty} \left( -\frac{1}{2} \frac{1}{x^4} (\text{Ei}(1, -tx) t^4 x^4 - \text{Ei}(1, -t) t^4 x^4 - 8 \text{Ei}(1, -tx) t^3 x^4 - e^t t^3 x^4 + 8 \text{Ei}(1, -t) t^3 x^4 + 12 \text{Ei}(1, -tx) t^2 x^4 + 7 e^t t^2 x^4 - 12 \text{Ei}(1, -t) t^2 x^4 + e^{tx} t^3 x^3 - 6 e^t t x^4 - 8 e^{tx} t^2 x^3 - 2 e^t x^4 + e^{tx} t^2 x^2 + 12 e^{tx} t x^3 - 8 e^{tx} t x^2 + 2 e^{tx} t x + 12 e^{tx} x^2 - 16 e^{tx} x + 6 e^{tx}) \right)$$

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

$$\frac{1}{1}$$

*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*

$$\frac{1}{1}$$

*Resetting low to RV's minimum support value*

$$12, \{\frac{1}{x-1}\}^2 \{x\}^5$$

$$\text{"i is"}, 4,$$

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

$$-----'$$

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

$$l := 0$$

$$u := \infty$$

$$\text{Temp} := \left[ [y \rightarrow 12 \tan(y) (-1 + \tan(y))^2 (1 + \tan(y)^2)], \left[ 0, \frac{1}{4} \pi \right], ["Continuous", "PDF"] \right]$$

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

$$\text{"g(x)"}, \arctan(x), \text{"base"}, 12 x (1 - x)^2, \text{"BetaRV(2,3)"}$$

$$\text{"f(x)"}, 12 \tan(x) (-1 + \tan(x))^2 (1 + \tan(x)^2)$$

$$\text{"F(x)"}, \begin{cases} \tan(x)^2 (3 \tan(x)^2 - 8 \tan(x) + 6) & x \leq \frac{1}{2} \pi \\ \text{undefined} & \frac{1}{2} \pi < x \end{cases}$$

*ERROR(IDF): Could not find the appropriate inverse*

*ERROR(IDF): Could not find the appropriate inverse*

$$\text{"IDF(x)"}, \left[ \begin{array}{l} s \rightarrow -\arctan \left( -\frac{2}{3} \right) \end{array} \right]$$

$$+ \frac{1}{6} \sqrt{2} \sqrt{\frac{3 \left( -s + 1 + \sqrt{s (s-1)^2} \right)^{2/3} + 2 \left( -s + 1 + \sqrt{s (s-1)^2} \right)^{1/3} - 3 s + 3}{\left( -s + 1 + \sqrt{s (s-1)^2} \right)^{1/3}}}$$

$$- \frac{1}{6} \sqrt{2} \left( \dots \right)$$

$$- \left( 3 \sqrt{\frac{3 \left( -s + 1 + \sqrt{s (s-1)^2} \right)^{2/3} + 2 \left( -s + 1 + \sqrt{s (s-1)^2} \right)^{1/3} - 3 s + 3}{\left( -s + 1 + \sqrt{s (s-1)^2} \right)^{1/3}}} \left( -s \right. \right.$$

$$\left. \left. + 1 + \sqrt{s (s-1)^2} \right)^{2/3} - 4 \left( -s + 1 + \sqrt{s (s-1)^2} \right)^1 \right)$$

$$\begin{aligned}
& \sqrt[3]{\frac{3 \left(-s+1+\sqrt{s (s-1)^2}\right)^{2/3}+2 \left(-s+1+\sqrt{s (s-1)^2}\right)^{1/3}-3 s+3}{\left(-s+1+\sqrt{s (s-1)^2}\right)^{1/3}}} \\
& -3 \sqrt{\frac{3 \left(-s+1+\sqrt{s (s-1)^2}\right)^{2/3}+2 \left(-s+1+\sqrt{s (s-1)^2}\right)^{1/3}-3 s+3}{\left(-s+1+\sqrt{s (s-1)^2}\right)^{1/3}}} s \\
& -4 \sqrt{2} \left(-s+1+\sqrt{s (s-1)^2}\right)^{1/3} \\
& +3 \sqrt{\frac{3 \left(-s+1+\sqrt{s (s-1)^2}\right)^{2/3}+2 \left(-s+1+\sqrt{s (s-1)^2}\right)^{1/3}-3 s+3}{\left(-s+1+\sqrt{s (s-1)^2}\right)^{1/3}}} \Bigg) \\
& \left( \left(-s+1+\sqrt{s (s-1)^2}\right)^1 \right. \\
& \left. {}^{1/2} \right) \\
& [0, 1], ["Continuous", "IDF"] \\
& "S(x)", \begin{cases} -3 \tan(x)^4 + 8 \tan(x)^3 - 6 \tan(x)^2 + 1 & x \leq \frac{1}{2} \pi \\ undefined & \frac{1}{2} \pi < x \end{cases}
\end{aligned}$$

$$\text{"h(x)"}, \begin{cases} \frac{12 \sin(x)}{(2 \sin(x) \cos(x) + 4 \cos(x)^2 - 3) \cos(x)} & x \leq \frac{1}{2} \pi \\ \text{undefined} & \frac{1}{2} \pi < x \end{cases}$$

"mean and variance",  $\pi - 4 \ln(2)$ ,  $2 \ln(2) - 7 + 2 \pi - \frac{3}{4} \pi^2 + 10 \pi \ln(2) - 8$  Catalan

$- 16 \ln(2)^2$

$$\text{"MF"}, \int_0^{\frac{1}{4} \pi} 12 x \tan(x) (-1 + \tan(x))^2 (1 + \tan(x)^2) dx$$

$$\text{"MGF"}, -12 \left( \int_0^{\frac{1}{4} \pi} \frac{\sin(x) (2 \sin(x) \cos(x) - 1) e^{tx}}{\cos(x)^5} dx \right)$$

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

*variable,  $\frac{1}{4} \pi$*

*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,  $\frac{1}{4} \pi$*

*Resetting high to RV's maximum support value*

12,  $\tan(x)$ ,  $\left( -1 + \tan(x) \right)^2$ ,  $2 \left( 1 + \tan(x) \right)^2$ , "i is", 5,

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

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

$$\text{Temp} := \left[ \left[ y \rightarrow \frac{12 \ln(y) (-1 + \ln(y))^2}{y} \right], [1, e], \text{"Continuous", "PDF"} \right]$$

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

"g(x)",  $e^x$ , "base",  $12 x (1 - x)^2$ , "BetaRV(2,3)"

$$\text{"f(x)"}, \frac{12 \ln(x) (-1 + \ln(x))^2}{x}$$

"F(x)",  $\ln(x)^2 (3 \ln(x)^2 - 8 \ln(x) + 6)$

"IDF(x)",  $\left[ \exp @ (s \rightarrow \text{RootOf}(3 Z^4 - 8 Z^3 + 6 Z^2 - s)) \right]$ , [0, 1], "Continuous", "IDF"]

$S(x)$ ,  $-3 \ln(x)^4 + 8 \ln(x)^3 - 6 \ln(x)^2 + 1$   
 $h(x)$ ,  $-\frac{12 \ln(x)}{(3 \ln(x)^2 - 2 \ln(x) - 1) x}$   
 $\text{mean and variance}$ ,  $132 - 48 e, -\frac{34821}{2} - \frac{4611}{2} e^2 + 12672 e$   
 $\text{MF}$ ,  $\frac{12 (2 e^{r \sim} r \sim + r \sim^2 - 6 e^{r \sim} + 4 r \sim + 6)}{r \sim^4}$   
 $\text{MGF}$ ,  $12 \left[ \int_1^e \frac{e^{tx} \ln(x) (-1 + \ln(x))^2}{x} dx \right]$

*WARNING(PlotDist): Low value provided by user, 0 is less than minimum support value of random variable*  
1  
*Resetting low to RV's minimum support value*  
*WARNING(PlotDist): High value provided by user, 40 is greater than maximum support value of the random variable,e*  
1  
*Resetting high to RV's maximum support value*  
*WARNING(PlotDist): Low value provided by user, 0 is less than minimum support value of random variable*  
1  
*Resetting low to RV's minimum support value*  
*WARNING(PlotDist): High value provided by user, 40 is greater than maximum support value of the random variable,e*  
1  
*Resetting high to RV's maximum support value*  
 $12, \{\frac{\ln \left( x \right)}{x^2}\}$   
*"i is", 6,*  
"-----"  
"-----"  
 $g := t \rightarrow \ln(t)$   
 $l := 0$   
 $u := \infty$   
 $Temp := \left[ \left[ y \rightarrow 12 e^{2y} (-1 + e^y)^2 \right], [-\infty, 0], \text{Continuous}, \text{PDF} \right]$   
*"l and u", 0,  $\infty$*   
 $g(x), \ln(x), \text{base}, 12 x (1 - x)^2, \text{BetaRV}(2,3)$   
 $f(x), 12 e^{2x} (-1 + e^x)^2$   
 $F(x), 6 e^{2x} - 8 e^{3x} + 3 e^{4x}$   
 $\text{IDF}(x), \left[ \left[ \ln @ (s \rightarrow \text{RootOf}(3 Z^4 - 8 Z^3 + 6 Z^2 - s)) \right], [0, 1], \text{Continuous}, \text{IDF} \right]$

$"S(x)", 1 - 6 e^{2x} + 8 e^{3x} - 3 e^{4x}$   
 $"h(x)", -\frac{12 e^{2x}}{3 e^{2x} - 2 e^x - 1}$   
 $"\text{mean and variance}", -\frac{13}{12}, \frac{61}{144}$   
 $"MF", \int_{-\infty}^0 12 x^r e^{2x} (-1 + e^x)^2 dx$   
 $"MGF", \lim_{x \rightarrow -\infty} \left( -\frac{1}{(t+2)(t+3)(t+4)} (12 (e^{x(t+4)} t^2 - 2 e^{x(t+3)} t^2 + e^{x(t+2)} t^2 + 5 e^{x(t+4)} t - 12 e^{x(t+3)} t + 7 e^{x(t+2)} t + 6 e^{x(t+4)} - 16 e^{x(t+3)} + 12 e^{x(t+2)} - 2)) \right)$   
*WARNING(PlotDist): High value provided by user, 40 is greater than maximum support value of the random variable, 0*  
*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, 0*  
*Resetting high to RV's maximum support value*  
Warning, unable to evaluate the function to numeric values in the region; see the plotting command's help page to ensure the calling sequence is correct  
 $12, \{\{\text{rm } e\}^{2, x}\} \left( -1 + \{\{\text{rm } e\}^x\} \right)^2$   
 $"i is", 7,$   
 $"-----"$   
 $-----"$   
 $g := t \rightarrow e^{-t}$   
 $l := 0$   
 $u := \infty$   
 $Temp := \left[ \left[ y \sim \rightarrow -\frac{12 \ln(y) (1 + \ln(y))^2}{y} \right], [e^{-1}, 1], ["\text{Continuous}", "PDF"] \right]$   
 $"l and u", 0, \infty$   
 $"g(x)", e^{-x}, "base", 12 x (1 - x)^2, "BetaRV(2,3)"$   
 $"f(x)", -\frac{12 \ln(x) (1 + \ln(x))^2}{x}$   
 $"F(x)", 1 - 3 \ln(x)^4 - 8 \ln(x)^3 - 6 \ln(x)^2$   
 $"IDF(x)", [[\exp @ (s \rightarrow RootOf(3 Z^4 + 8 Z^3 + 6 Z^2 + s - 1))], [0, 1], ["\text{Continuous}", "IDF"]]$   
 $"S(x)", \ln(x)^2 (3 \ln(x)^2 + 8 \ln(x) + 6)$   
 $"h(x)", -\frac{12 (1 + \ln(x))^2}{\ln(x) x (3 \ln(x)^2 + 8 \ln(x) + 6)}$

"mean and variance",  $-96 e^{-1} + 36, -\frac{18447}{2} e^{-2} - \frac{2589}{2} + 6912 e^{-1}$   
 "MF",  $\frac{12 (e^{r\sim} r\sim^2 - 4 e^{r\sim} r\sim + 6 e^{r\sim} - 2 r\sim - 6) e^{-r\sim}}{r\sim^4}$   
 "MGF",  $-12 \left( \int_{e^{-1}}^1 \frac{e^{tx} \ln(x) (1 + \ln(x))^2}{x} dx \right)$   
*WARNING(PlotDist): Low value provided by user, 0 is less than minimum support value of random variable*  
 $e^{-1}$   
*Resetting low to RV's minimum support value*  
*WARNING(PlotDist): High value provided by user, 40 is greater than maximum support value of the random variable, 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*  
 $e^{-1}$   
*Resetting low to RV's minimum support value*  
*WARNING(PlotDist): High value provided by user, 40 is greater than maximum support value of the random variable, 1*  
*Resetting high to RV's maximum support value*  
 $-12 \left( \frac{\ln \left( x \right) \left( 1 + \ln \left( x \right) \right)^2}{x} \right) \{x\}$   
 "i is", 8,  

$$\frac{g := t \rightarrow -\ln(t)}{l := 0}$$
  

$$u := \infty$$
  
 $Temp := \left[ \left[ y \rightarrow 12 e^{-4y} (-1 + e^y)^2 \right], [0, \infty], ["Continuous", "PDF"] \right]$   
 "l and u", 0,  $\infty$   
 "g(x)",  $-\ln(x)$ , "base",  $12 x (1 - x)^2$ , "BetaRV(2,3)"  
 "f(x)",  $12 e^{-4x} (-1 + e^x)^2$   
 "F(x)",  $(e^{4x} - 6 e^{2x} + 8 e^x - 3) e^{-4x}$   
 "IDF(x)",  $\left[ \ln @ (s \rightarrow RootOf(3 + (s - 1) Z^4 + 6 Z^2 - 8 Z)) \right], [0, 1], ["Continuous", "IDF"]$   
 "S(x)",  $(6 e^{2x} - 8 e^x + 3) e^{-4x}$

$"h(x)"$ ,  $\frac{12 (-1 + e^x)^2}{6 e^{2x} - 8 e^x + 3}$   
 $"mean and variance"$ ,  $\frac{13}{12}, \frac{61}{144}$   
 $"MF"$ ,  $12 \Gamma(r \sim + 1) (4^{-r \sim - 1} - 2 3^{-r \sim - 1} + 2^{-r \sim - 1})$   
 $"MGF"$ ,  $\lim_{x \rightarrow \infty} \left( -\frac{1}{(t-4) (t-3) (-2+t)} (12 (2 e^{x(t-3)} t^2 - e^{x(-2+t)} t^2 - e^{x(t-4)} t^2 - 12 e^{x(t-3)} t + 7 e^{x(-2+t)} t + 5 e^{x(t-4)} t + 16 e^{x(t-3)} - 12 e^{x(-2+t)} - 6 e^{x(t-4)} + 2) \right)$   
 $12 \cdot \{ \{ \text{rm e} \}^{-4}, x \} \left( -1 + \{ \{ \text{rm e} \}^x \} \right)^2$   
 $"i is"$ , 9,  
 $"-----"$   
 $g := t \rightarrow \ln(t + 1)$   
 $l := 0$   
 $u := \infty$   
 $Temp := \left[ \left[ y \sim \rightarrow 12 (-1 + e^{y \sim}) (-2 + e^{y \sim})^2 e^{y \sim} \right], [0, \ln(2)], ["Continuous", "PDF"] \right]$   
 $"l and u"$ , 0,  $\infty$   
 $"g(x)"$ ,  $\ln(x + 1)$ , "base",  $12 x (1 - x)^2$ , "BetaRV(2,3)"  
 $"f(x)"$ ,  $12 (-1 + e^x) (-2 + e^x)^2 e^x$   
 $"F(x)"$ ,  $17 + 3 e^{4x} - 20 e^{3x} + 48 e^{2x} - 48 e^x$   
 $"IDF(x)"$ ,  $\left[ \left[ \ln @ (s \rightarrow RootOf(3 \_Z^4 - 20 \_Z^3 + 48 \_Z^2 - 48 \_Z - s + 17)) \right], [0, 1], ["Continuous", "IDF"] \right]$   
 $"S(x)"$ ,  $-16 - 3 e^{4x} + 20 e^{3x} - 48 e^{2x} + 48 e^x$   
 $"h(x)"$ ,  $-\frac{12 e^x (-1 + e^x)}{3 e^{2x} - 8 e^x + 4}$   
 $"mean and variance"$ ,  $\frac{137}{12} - 16 \ln(2), -\frac{25895}{144} - 272 \ln(2)^2 + 448 \ln(2)$   
 $"MF"$ ,  $\int_0^{\ln(2)} 12 x^{\sim} (-1 + e^x) (-2 + e^x)^2 e^x dx$   
 $"MGF"$ ,  $\frac{12 (16 2^t t + t^2 - 32 2^t + 11 t + 34)}{t^4 + 10 t^3 + 35 t^2 + 50 t + 24}$   

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

*Resetting high to RV's maximum support value*

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

is greater than maximum support value of the random variable,  $\ln(2)$

Resetting high to RV's maximum support value

```
12\, \left( -1+\{\rm e\}^x \right) \left( -2+\{\rm e\}^x \right) ^2\{\rm e}^x
"i is", 10,
```

"-----"  

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[ \left[ y \rightarrow \frac{12 \left( e^y - 2 \right) \left( -3 + e^y \right)^2 e^y}{y^2} \right], \left[ \frac{1}{\ln(3)}, \frac{1}{\ln(2)} \right], ["Continuous", "PDF"] \right]$$

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

"g(x)",  $\frac{1}{\ln(x+2)}$ , "base",  $12 x (1-x)^2$ , "BetaRV(2,3)"

"f(x)",  $\frac{12 \left( e^x - 2 \right) \left( -3 + e^x \right)^2 e^x}{x^2}$

"F(x)",  $-135 - 3 e^x + 32 e^x - 126 e^x + 216 e^x$

"IDF(x)",  $\left[ s \rightarrow \frac{1}{\ln(RootOf(3 \_Z^4 - 32 \_Z^3 + 126 \_Z^2 - 216 \_Z + s + 135))} \right], [0, 1], ["Continuous", "IDF"]$

"S(x)",  $136 + 3 e^x - 32 e^x + 126 e^x - 216 e^x$

"h(x)",  $\frac{12 e^x \left( -3 + e^x \right)^2}{\left( 3 e^x - 26 e^x + 74 e^x - 68 \right) x^2}$

"mean and variance",  $252 \operatorname{Ei}(2 \ln(3)) - 96 \operatorname{Ei}(3 \ln(3)) + 12 \operatorname{Ei}(4 \ln(3)) - 216 \operatorname{Ei}(\ln(3)) - 252 \operatorname{Ei}(2 \ln(2)) + 96 \operatorname{Ei}(3 \ln(2)) - 12 \operatorname{Ei}(4 \ln(2)) + 216 \operatorname{Ei}(\ln(2)), 504 \operatorname{Ei}(2 \ln(3)) - 288 \operatorname{Ei}(3 \ln(3)) + 48 \operatorname{Ei}(4 \ln(3)) - 216 \operatorname{Ei}(\ln(3)) - 504 \operatorname{Ei}(2 \ln(2)) + 288 \operatorname{Ei}(3 \ln(2)) - 48 \operatorname{Ei}(4 \ln(2)) + 216 \operatorname{Ei}(\ln(2)) - (252 \operatorname{Ei}(2 \ln(3)) - 96 \operatorname{Ei}(3 \ln(3)) + 12 \operatorname{Ei}(4 \ln(3)) - 216 \operatorname{Ei}(\ln(3)) - 252 \operatorname{Ei}(2 \ln(2)) + 96 \operatorname{Ei}(3 \ln(2))$

$$\begin{aligned}
 & -12 \operatorname{Ei}(4 \ln(2)) + 216 \operatorname{Ei}(\ln(2)) \big)^2 \\
 & \text{"MF", } \int_{\frac{1}{\ln(3)}}^{\frac{1}{\ln(2)}} \frac{12 x^{r \sim} \left( e^{\frac{1}{x}} - 2 \right) \left( -3 + e^{\frac{1}{x}} \right)^2 e^{\frac{1}{x}}}{x^2} dx \\
 & \text{"MGF", } 12 \left( \int_{\frac{1}{\ln(3)}}^{\frac{1}{\ln(2)}} \frac{\left( e^{\frac{1}{x}} - 2 \right) \left( -3 + e^{\frac{1}{x}} \right)^2 e^{\frac{tx^2+1}{x}}}{x^2} dx \right)
 \end{aligned}$$

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

$$\frac{1}{\ln(3)}$$

### *Resetting low to RV's minimum support value*

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

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

### *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*

$$\frac{1}{\ln(3)}$$

### *Resetting low to RV's minimum support value*

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

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

### *Resetting high to RV's maximum support value*

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

"i is", 11,

"-----"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[ \left[ y \rightsquigarrow -\frac{12 \operatorname{arctanh}(y) (-1 + \operatorname{arctanh}(y))^2}{y^2 - 1} \right], [0, \tanh(1)], ["Continuous", \dots] \right]$$

"PDF"]

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

"g(x)",  $\tanh(x)$ , "base",  $12 x (1 - x)^2$ , "BetaRV(2,3)"

$$\text{"f(x)"}, -\frac{12 \operatorname{arctanh}(x) (-1 + \operatorname{arctanh}(x))^2}{x^2 - 1}$$

$$\text{"F(x)"}, \begin{cases} \operatorname{arctanh}(x)^2 (3 \operatorname{arctanh}(x)^2 - 8 \operatorname{arctanh}(x) + 6) & x \leq 1 \\ \text{undefined} & 1 < x \end{cases}$$

*ERROR(IDF): Could not find the appropriate inverse*

*ERROR(IDF): Could not find the appropriate inverse*

$$\text{"IDF(x)"}, \left[ \begin{array}{c} s \rightarrow -\operatorname{tanh} \left( -\frac{2}{3} \right) \end{array} \right]$$

$$+ \frac{1}{6} \sqrt{2} \sqrt{\frac{3 \left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{2/3} + 2 \left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{1/3} - 3 s + 3}{\left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{1/3}}}$$

$$- \frac{1}{6} \left( \begin{array}{c} \end{array} \right)$$

$$- \left( 2 \left( 3 \sqrt{\frac{3 \left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{2/3} + 2 \left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{1/3} - 3 s + 3}{\left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{1/3}}} \right) \right)$$

$$\left( -s + 1 + \sqrt{s(s-1)^2} \right)^{2/3} - 4 \left( -s + 1 + \sqrt{s(s-1)^2} \right)^1$$

$$\sqrt[3]{\frac{3 \left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{2/3} + 2 \left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{1/3} - 3 s + 3}{\left( -s + 1 + \sqrt{s (s - 1)^2} \right)^{1/3}}}$$

$$-3 \sqrt{\frac{3 \left(-s+1+\sqrt{s \left(s-1\right)^2}\right)^{2/3}+2 \left(-s+1+\sqrt{s \left(s-1\right)^2}\right)^{1/3}-3 s+3}{\left(-s+1+\sqrt{s \left(s-1\right)^2}\right)^{1/3}}} s$$

$$-4\sqrt{2}\left(-s+1+\sqrt{s(s-1)^2}\right)^{1/3}$$

$$+ 3 \sqrt{ \frac{3 \left( -s + 1 + \sqrt{s (s-1)^2} \right)^{2/3} + 2 \left( -s + 1 + \sqrt{s (s-1)^2} \right)^{1/3} - 3 s + 3}{\left( -s + 1 + \sqrt{s (s-1)^2} \right)^{1/3}} } \Bigg)$$

$[0, 1], ["Continuous", "IDF"]$

$$"S(x)", \begin{cases} -3 \operatorname{arctanh}(x)^4 + 8 \operatorname{arctanh}(x)^3 - 6 \operatorname{arctanh}(x)^2 + 1 & x \leq 1 \\ \text{undefined} & 1 < x \end{cases}$$

$$"h(x)", \begin{cases} \frac{12 \operatorname{arctanh}(x)}{(3 \operatorname{arctanh}(x)^2 - 2 \operatorname{arctanh}(x) - 1) (x^2 - 1)} & x \leq 1 \\ \operatorname{arctanh}(x) (-1 + \operatorname{arctanh}(x))^2 \text{undefined} & 1 < x \end{cases}$$

"mean and variance",  $-12 \left( \int_0^{\tanh(1)} \frac{\operatorname{arctanh}(x) x (\operatorname{arctanh}(x)^2 - 2 \operatorname{arctanh}(x) + 1)}{x^2 - 1} dx \right)$ ,

$$-12 \left( \int_0^{\tanh(1)} \frac{\operatorname{arctanh}(x) x^2 (\operatorname{arctanh}(x)^2 - 2 \operatorname{arctanh}(x) + 1)}{x^2 - 1} dx \right)$$

$$-144 \left( \int_0^{\tanh(1)} \frac{\operatorname{arctanh}(x) x (\operatorname{arctanh}(x)^2 - 2 \operatorname{arctanh}(x) + 1)}{x^2 - 1} dx \right)^2$$

$$"MF", \int_0^{\tanh(1)} \left( -\frac{12 x^2 \operatorname{arctanh}(x) (-1 + \operatorname{arctanh}(x))^2}{x^2 - 1} \right) dx$$

$$"MGF", -12 \left( \int_0^{\tanh(1)} \frac{\operatorname{arctanh}(x) e^{tx} (\operatorname{arctanh}(x)^2 - 2 \operatorname{arctanh}(x) + 1)}{x^2 - 1} dx \right)$$

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

*Resetting high to RV's maximum support value*

$-12 \left( \frac{\operatorname{arctanh}(\operatorname{arctanh}(x)) \operatorname{arctanh}(\operatorname{arctanh}(x))}{\operatorname{arctanh}(\operatorname{arctanh}(x))} \right)^2 \right) \{ \{ x \}^{\{ 2 \} - 1} \}$   
 "i is", 12,

" \_\_\_\_\_  
 \_\_\_\_\_"

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

```

l := 0
u := ∞
Temp := [[y~→ 12 arcsinh(y~) (-1 + arcsinh(y~))2 / √y~2 + 1], [0, sinh(1)], ["Continuous", "PDF"]]
"l and u", 0, ∞
"g(x)", sinh(x), "base", 12 x (1 - x)2, "BetaRV(2,3)"
"f(x)", 12 arcsinh(x) (-1 + arcsinh(x))2 / √x2 + 1
"F(x)", ln(-x + √x2 + 1)2 (3 ln(-x + √x2 + 1)2 + 8 ln(-x + √x2 + 1) + 6)
"IDF(x)", [[s→ - 1/2 eRootOf(3_Z4 + 8_Z3 + 6_Z2 - s) + 1/2 e-RootOf(3_Z4 + 8_Z3 + 6_Z2 - s)], [0, 1],
["Continuous", "IDF"]]
"S(x)", -3 ln(-x + √x2 + 1)4 - 8 ln(-x + √x2 + 1)3 - 6 ln(-x + √x2 + 1)2 + 1
"h(x)",
- (12 arcsinh(x) (-1 + arcsinh(x))2) / ( √x2 + 1 (3 ln(-x + √x2 + 1)4 + 8 ln(-x + √x2 + 1)3 + 6 ln(-x + √x2 + 1)2 - 1) )
"mean and variance", 6 √2 + 2 cosh(2) ln(2)3 - 18 √2 + 2 cosh(2) ln(2)2 ln(-2 sinh(1) + √2 + 2 cosh(2)) + 18 √2 + 2 cosh(2) ln(2) ln(-2 sinh(1) + √2 + 2 cosh(2))2 - 6 √2 + 2 cosh(2) ln(-2 sinh(1) + √2 + 2 cosh(2))3 - 36 sinh(1) ln(2)2 + 72 sinh(1) ln(2) ln(-2 sinh(1) + √2 + 2 cosh(2)) - 36 sinh(1) ln(-2 sinh(1) + √2 + 2 cosh(2))2 - 12 √2 + 2 cosh(2) ln(2)2 + 24 √2 + 2 cosh(2) ln(2) ln(-2 sinh(1) + √2 + 2 cosh(2)) - 12 √2 + 2 cosh(2) ln(-2 sinh(1) + √2 + 2 cosh(2))2 + 48 sinh(1) ln(2) - 48 sinh(1) ln(-2 sinh(1) + √2 + 2 cosh(2)) + 42 √2 + 2 cosh(2) ln(2) - 42 √2 + 2 cosh(2) ln(-2 sinh(1) + √2 + 2 cosh(2)) - 84 sinh(1) - 24 √2 + 2 cosh(2) + 48,
1728 √2 + 2 cosh(2) ln(2)2 ln(-2 sinh(1) + √2 + 2 cosh(2)) - 1728 √2 + 2 cosh(2) ln(2) ln(-2 sinh(1) + √2 + 2 cosh(2))2 - 6912 sinh(1) ln(2) ln(-2 sinh(1) + √2 + 2 cosh(2)) - 2304 √2 + 2 cosh(2) ln(2) ln(-2 sinh(1) + √2 + 2 cosh(2)) + 18735/2 √2 + 2 cosh(2) sinh(1) ln(2) - 18735/2 √2 + 2 cosh(2) sinh(1) ln(-2 sinh(1) + √2 + 2 cosh(2)) + 5187 sinh(1) √2 + 2 cosh(2) ln(2)3 - 5187 sinh(1) √2 + 2 cosh(2) ln(-2 sinh(1) + √2 + 2 cosh(2))3

```

$$\begin{aligned}
& + 9369 \cosh(2) \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& - 7782 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^2 - 7782 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& - 4032 \ln(2) + 432 \ln(2)^5 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \cosh(2) \\
& + 1440 \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \cosh(2) - 1080 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 \cosh(2) \\
& + 1440 \ln(2)^4 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \cosh(2) \\
& + 2880 \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \cosh(2) - 2880 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \cosh(2) \\
& + 1440 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 \cosh(2) + 5184 \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \cosh(2) \\
& - 7776 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \cosh(2) + 5184 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \cosh(2) \\
& - 1440 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^4 - 1440 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 \\
& + 432 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^5 + 3669 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& - 860 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 - \frac{3}{2} \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 + 4032 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& - 2160 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^4 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& + 4320 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& - 4320 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \\
& + 2160 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 \\
& + 5760 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& - 8640 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& + 5760 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \\
& + 2580 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) - 2580 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& - 7338 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& - 4035 \sqrt{2 + 2 \cosh(2)} \sinh(1) + 3669 \ln(2)^2 + 2304 \sqrt{2 + 2 \cosh(2)} \\
& - \frac{4623}{4} \cosh(2) + \frac{14415}{4} - 7056 \cosh(1)^2 + 5184 \cosh(1)^2 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& + \sqrt{2 + 2 \cosh(2)}^3 - 10368 \cosh(1)^2 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})
\end{aligned}$$

$$\begin{aligned}
& + 10368 \cosh(1)^2 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 + 16704 \cosh(1)^2 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& + 5184 \cosh(1)^2 \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& + \sqrt{2 + 2 \cosh(2)} - 7776 \cosh(1)^2 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& - 15561 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& + 15561 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& + 15564 \sinh(1) \sqrt{2 + 2 \cosh(2)} \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) - \frac{3}{2} \ln(2)^4 \\
& + 4038 \cosh(2) \ln(2) - 4038 \cosh(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) + 6 \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& - 9 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 - \frac{9369}{2} \cosh(2) \ln(2)^2 \\
& - \frac{9369}{2} \cosh(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 - 576 \sqrt{2 + 2 \cosh(2)} \ln(2)^3 \\
& + 576 \sqrt{2 + 2 \cosh(2)} \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 + 3456 \sinh(1) \ln(2)^2 \\
& + 3456 \sinh(1) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 + 1152 \sqrt{2 + 2 \cosh(2)} \ln(2)^2 \\
& + 1152 \sqrt{2 + 2 \cosh(2)} \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 - 4608 \sinh(1) \ln(2) \\
& + 4608 \sinh(1) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) - 4032 \sqrt{2 + 2 \cosh(2)} \ln(2) \\
& + 4032 \sqrt{2 + 2 \cosh(2)} \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) - 72 \ln(2)^6 - 72 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^6 \\
& + 288 \ln(2)^5 - 288 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^5 \\
& - 72 \ln(2)^6 \cosh(2) - 72 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^6 \cosh(2) \\
& + 288 \ln(2)^5 \cosh(2) - 288 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^5 \cosh(2) \\
& + 432 \ln(2)^5 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) - 1080 \ln(2)^4 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 \\
& + 1440 \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \\
& - 1080 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 + 432 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^5 \\
& - 1296 \ln(2)^4 \cosh(2) - 1296 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 \\
& + \sqrt{2 + 2 \cosh(2)}^4 \cosh(2) - 1440 \ln(2)^4 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) \\
& + 2880 \ln(2)^3 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2 - 2880 \ln(2)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \\
& + 1440 \ln(2) \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 \\
& + 2592 \ln(2)^3 \cosh(2) - 2592 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \cosh(2) \\
& - 1296 \cosh(1)^2 \ln(2)^4 - 1296 \cosh(1)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^4 \\
& + 3456 \cosh(1)^2 \ln(2)^3 - 3456 \cosh(1)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^3 \\
& - 8352 \cosh(1)^2 \ln(2)^2 - 8352 \cosh(1)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)})^2
\end{aligned}$$

$+ 8064 \cosh(1)^2 \ln(2) - 8064 \cosh(1)^2 \ln(-2 \sinh(1) + \sqrt{2 + 2 \cosh(2)}) - 860 \ln(2)^3$   
 $+ 8064 \sinh(1)$

"MF",  $\int_0^{\sinh(1)} \frac{12 x \arcsinh(x) (-1 + \arcsinh(x))^2}{\sqrt{x^2 + 1}} dx$   
 "MGF",  $12 \left( \int_0^{\sinh(1)} \frac{e^{tx} \arcsinh(x) (\arcsinh(x)^2 - 2 \arcsinh(x) + 1)}{\sqrt{x^2 + 1}} dx \right)$

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

$12 \frac{\frac{\partial}{\partial x} \left( \frac{\partial}{\partial x} \arcsinh(x) \right) \left( -1 + \frac{\partial}{\partial x} \arcsinh(x) \right)^2}{\sqrt{x^2 + 1}}$   
 "i is", 13,  
 "-----"  
 -----"  

$$\begin{aligned} g &:= t \rightarrow \arcsinh(t) \\ l &:= 0 \\ u &:= \infty \end{aligned}$$

$Temp := [[y \rightarrow -12 \sinh(y) \cosh(y) (-\cosh(y)^2 + 2 \sinh(y))], [0, -\ln(\sqrt{2} - 1)]]$   
 ["Continuous", "PDF"]

"l and u", 0,  $\infty$   
 "g(x)",  $\arcsinh(x)$ , "base",  $12 x (1 - x)^2$ , "BetaRV(2,3)"  
 "f(x)",  $-12 \sinh(x) \cosh(x) (-\cosh(x)^2 + 2 \sinh(x))$   
 "F(x)",  $-\sinh(x)^2 (-3 \cosh(x)^2 + 8 \sinh(x) - 3)$   
 "IDF(x)",  $[[\ln(s \rightarrow RootOf(3 + 3 Z^8 - 16 Z^7 + 12 Z^6 + 48 Z^5 + (-16 s - 30) Z^4 - 48 Z^3 + 12 Z^2 + 16 Z))], [0, 1], ["Continuous", "IDF"]]$   
 "S(x)",  $-3 \cosh(x)^4 + 8 \cosh(x)^2 \sinh(x) - 8 \sinh(x) + 4$   
 "h(x)",  $\frac{12 \cosh(x) \sinh(x)}{-3 \cosh(x)^2 + 2 \sinh(x) + 4}$   
 "mean and variance",  $-\frac{1}{24} \frac{828 \ln(\sqrt{2} - 1) \sqrt{2} - 1173 \ln(\sqrt{2} - 1) - 3695 \sqrt{2} + 5224}{-17 + 12 \sqrt{2}},$   
 $\frac{1}{576} \frac{1}{(-17 + 12 \sqrt{2})^2} (-1791585 \ln(\sqrt{2} - 1)^2 + 1266840 \ln(\sqrt{2} - 1)^2 \sqrt{2})$

$$\begin{aligned}
& + 19519008 \ln(\sqrt{2} - 1) - 13802022 \ln(\sqrt{2} - 1) \sqrt{2} - 50894194 + 35987632 \sqrt{2}) \\
& \text{"MF", } \int_0^{-\ln(\sqrt{2} - 1)} (-12 x^r \sinh(x) \cosh(x) (-\cosh(x)^2 + 2 \sinh(x))) \, dx \\
& \text{"MGF", } - \left( 12 \left( -1530 + 4352 t - 816 t^4 (\sqrt{2} - 1)^{-t} + 1190 t^3 (\sqrt{2} - 1)^{-t} \sqrt{2} + 68 t^5 \right. \right. \\
& \quad + 17 t^6 + 576 t^4 (\sqrt{2} - 1)^{-t} \sqrt{2} + 68 t^5 (\sqrt{2} - 1)^{-t} \sqrt{2} - 1680 t^3 (\sqrt{2} - 1)^{-t} \\
& \quad + 1530 t^2 (\sqrt{2} - 1)^{-t} + 6096 t (\sqrt{2} - 1)^{-t} - 96 t^5 (\sqrt{2} - 1)^{-t} - 1656 (\sqrt{2} - 1)^{-t} \\
& \quad \left. \left. \sqrt{2} - 4318 t (\sqrt{2} - 1)^{-t} \sqrt{2} - 1080 t^2 (\sqrt{2} - 1)^{-t} \sqrt{2} + 1080 \sqrt{2} - 48 \sqrt{2} t^5 \right) \right. \\
& \quad + 240 \sqrt{2} t^4 - 12 \sqrt{2} t^6 + 960 \sqrt{2} t^3 - 1308 \sqrt{2} t^2 - 3072 \sqrt{2} t - 340 t^4 - 1360 t^3 \\
& \quad + 1853 t^2 + 2346 (\sqrt{2} - 1)^{-t} \right) \Big/ (12 \sqrt{2} t^8 - 17 t^8 - 360 \sqrt{2} t^6 + 510 t^6 + 3276 \sqrt{2} t^4 \\
& \quad - 4641 t^4 - 9840 \sqrt{2} t^2 + 13940 t^2 + 6912 \sqrt{2} - 9792) \\
& \quad \text{WARNING(PlotDist): High value provided by user, 40} \\
& \quad \text{is greater than maximum support value of the random} \\
& \quad \text{variable, } -\ln(\sqrt{2} - 1) \\
& \quad \text{Resetting high to RV's maximum support value} \\
& \quad \text{WARNING(PlotDist): High value provided by user, 40} \\
& \quad \text{is greater than maximum support value of the random} \\
& \quad \text{variable, } -\ln(\sqrt{2} - 1) \\
& \quad \text{Resetting high to RV's maximum support value} \\
& -12 \sinh(\left.x\right) \cosh(\left.x\right) \left(-\cosh(\left.x\right)^2 + 2 \sinh(\left.x\right)\right) \\
& \text{"i is", 14,} \\
& \quad \text{-----} \\
& \quad \text{-----} \\
& \quad g := t \rightarrow \text{csch}(t + 1) \\
& \quad l := 0 \\
& \quad u := \infty \\
& \text{Temp} := \left[ \left[ y \rightarrow \frac{12 (-1 + \text{arccsch}(y)) (-2 + \text{arccsch}(y))^2}{\sqrt{y^2 + 1}} \right| y \right], \left[ -\frac{2}{e^{-2} - e^2}, \frac{2}{e - e^{-1}} \right], \\
& \quad \left[ \text{"Continuous", "PDF"} \right] \\
& \quad \text{l and u", 0, } \infty \\
& \quad \text{"g(x)", } \text{csch}(x + 1), \text{"base", } 12 x (1 - x)^2, \text{"BetaRV(2,3)"} \\
& \quad \text{"f(x)", } \frac{12 (-1 + \text{arccsch}(x)) (-2 + \text{arccsch}(x))^2}{\sqrt{x^2 + 1} |x|}
\end{aligned}$$

$$\text{"F(x)"}, 12 \left( \int_{\frac{2e^2}{e^4-1}}^x \frac{(-1 + \operatorname{arccsch}(t)) (-2 + \operatorname{arccsch}(t))^2}{\sqrt{t^2+1} |t|} dt \right)$$

$$\text{"S(x)"}, 1 - 12 \left( \int_{\frac{2e^2}{e^4-1}}^x \frac{(-1 + \operatorname{arccsch}(t)) (-2 + \operatorname{arccsch}(t))^2}{\sqrt{t^2+1} |t|} dt \right)$$

$$\text{"h(x)"}, - \frac{12 (-1 + \operatorname{arccsch}(x)) (-2 + \operatorname{arccsch}(x))^2}{\sqrt{x^2+1} |x|} \left( -1 + 12 \left( \int_{\frac{2e^2}{e^4-1}}^x \frac{(-1 + \operatorname{arccsch}(t)) (-2 + \operatorname{arccsch}(t))^2}{\sqrt{t^2+1} |t|} dt \right) \right)$$

$$\text{"mean and variance"}, 12 \left( \int_{\frac{2e^2}{e^4-1}}^{\frac{2e}{e^2-1}} \frac{(-1 + \operatorname{arccsch}(x)) (-2 + \operatorname{arccsch}(x))^2}{\sqrt{x^2+1}} dx \right), 12 \left( \int_{\frac{2e^2}{e^4-1}}^{\frac{2e}{e^2-1}} \frac{x (-1 + \operatorname{arccsch}(x)) (-2 + \operatorname{arccsch}(x))^2}{\sqrt{x^2+1}} dx \right)$$

$$- 144 \left( \int_{\frac{2e^2}{e^4-1}}^{\frac{2e}{e^2-1}} \frac{(-1 + \operatorname{arccsch}(x)) (-2 + \operatorname{arccsch}(x))^2}{\sqrt{x^2+1}} dx \right)^2$$

$$\text{"MF"}, \int_{-\frac{2}{e^{-2}-e^2}}^{\frac{2}{e-e^{-1}}} \frac{12 x' \sim (-1 + \operatorname{arccsch}(x)) (-2 + \operatorname{arccsch}(x))^2}{\sqrt{x^2+1} |x|} dx$$

$$\text{"MGF"}, 12 \left( \int_{\frac{2e^2}{e^4-1}}^{\frac{2e}{e^2-1}} \frac{e^{tx} (-1 + \operatorname{arccsch}(x)) (-2 + \operatorname{arccsch}(x))^2}{\sqrt{x^2+1} x} dx \right)$$

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

$$-\frac{2}{e^{-2} - e^2}$$

*Resetting low to RV's minimum support value*

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

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

*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*

$$-\frac{2}{e^{-2} - e^2}$$

*Resetting low to RV's minimum support value*

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

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

*Resetting high to RV's maximum support value*

```
12\, , {\frac { \left( -1+{\it arccsch} \left( x \right) \right) \left( \left( -2+{\it arccsch} \left( x \right) \right) ^{2} \right) \sqrt { \left( x \right) ^{2}+1} }{ \left( x \right) ^{5}} } \\
"i is", 15,
```

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-----"

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[ \left[ y \rightarrow -\frac{12 (4 \cosh(y)^2 \sinh(y) - 8 \cosh(y)^2 + \sinh(y) + 7) \cosh(y)}{\sinh(y)^5} \right], \right.$$

$$\left. \left[ \ln(2) - \ln(\sqrt{5} - 1), \ln(1 + \sqrt{2}) \right], \left[ \text{Continuous}, \text{PDF} \right] \right]$$

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

$$"g(x)", \text{arccsch}(x + 1), "base", 12 x (1 - x)^2, "BetaRV(2,3)"$$

$$"f(x)", -\frac{12 (4 \cosh(x)^2 \sinh(x) - 8 \cosh(x)^2 + \sinh(x) + 7) \cosh(x)}{\sinh(x)^5}$$

$$"F(x)", -\frac{16 (e^{8x} - 6 e^{7x} + 8 e^{6x} + 8 e^{5x} - 15 e^{4x} - 8 e^{3x} + 8 e^{2x} + 6 e^x + 1)}{e^{8x} - 4 e^{6x} + 6 e^{4x} - 4 e^{2x} + 1}$$

$$"IDF(x)", [[\ln @ (s \rightarrow \text{RootOf}((16 + s) Z^8 - 96 Z^7 + (-4 s + 128) Z^6 + 128 Z^5 + (6 s$$

```

- 240)  $_Z^4 - 128 _Z^3 + (-4 s + 128) _Z^2 + 96 _Z + 16 + s) )], [0, 1], ["Continuous",
"IDF"]]$ 
"S(x)",  $\frac{17 e^{8x} - 96 e^{7x} + 124 e^{6x} + 128 e^{5x} - 234 e^{4x} - 128 e^{3x} + 124 e^{2x} + 96 e^x + 17}{e^{8x} - 4 e^{6x} + 6 e^{4x} - 4 e^{2x} + 1}$ 
"h(x)",  $-\left(12 \left(4 \cosh(x)^2 \sinh(x) - 8 \cosh(x)^2 + \sinh(x) + 7\right) \cosh(x) \left(e^{8x} - 4 e^{6x} + 6 e^{4x} - 4 e^{2x} + 1\right)\right) / \left(\sinh(x)^5 \left(17 e^{8x} - 96 e^{7x} + 124 e^{6x} + 128 e^{5x} - 234 e^{4x} - 128 e^{3x} + 124 e^{2x} + 96 e^x + 17\right)\right)$ 
-12\, , {\frac { \left( 4\, \left( \cosh \left( x \right) \right)^2 \sinh \left( x \right) -8\, \cosh \left( x \right)^2 +\sinh \left( x \right) +7 \right) \cosh \left( x \right) \left( {e}^{8x} -4\, {e}^{6x} +6\, {e}^{4x} -4\, {e}^{2x} +1 \right) }{ \left( \sinh \left( x \right)^5 \left( 17\, {e}^{8x} -96\, {e}^{7x} +124\, {e}^{6x} +128\, {e}^{5x} -234\, {e}^{4x} -128\, {e}^{3x} +124\, {e}^{2x} +96\, {e}^x +17 \right) }}}
"i is", 16,
" -----
-----"

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


$$l := 0$$


$$u := \infty$$


$$Temp := \left[ \left[ y \mapsto \frac{12 \left( -1 + \operatorname{arctanh} \left( \frac{1}{y} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{y} \right) \right)^2}{y^2 - 1} \right], \left[ \frac{-e^{-2} - e^2}{e^{-2} - e^2}, \frac{e + e^{-1}}{e - e^{-1}} \right], ["Continuous", "PDF"] \right]$$

"l and u", 0,  $\infty$ 
"g(x)",  $\frac{1}{\tanh(x+1)}$ , "base",  $12 x (1-x)^2$ , "BetaRV(2,3)"
"f(x)",  $\frac{12 \left( -1 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right)^2}{x^2 - 1}$ 
"F(x)",  $3 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^4 - 20 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^3 + 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^2$ 
 $- 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right) - 3 \operatorname{arctanh} \left( \frac{1}{x} \right)^4 + 20 \operatorname{arctanh} \left( \frac{1}{x} \right)^3 - 48 \operatorname{arctanh} \left( \frac{1}{x} \right)^2$ 
 $+ 48 \operatorname{arctanh} \left( \frac{1}{x} \right)$ 
"IDF(x)",  $\left[ s \mapsto 1 \middle/ \left( \tanh \left( \operatorname{RootOf} \left( -3 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^4 + 3 \, Z^4 + 20 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^3 \right. \right. \right. \right. \right. \right]$ 

```

$$\begin{aligned}
& \left. \left[ -20 \_Z^3 - 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^2 + 48 \_Z^2 + 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right) + s - 48 \_Z \right) \right] \right] \\
& [0, 1], ["Continuous", "IDF"] \Bigg] \\
& "S(x)", 1 - 3 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^4 + 20 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^3 - 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^2 \\
& + 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right) + 3 \operatorname{arctanh} \left( \frac{1}{x} \right)^4 - 20 \operatorname{arctanh} \left( \frac{1}{x} \right)^3 + 48 \operatorname{arctanh} \left( \frac{1}{x} \right)^2 \\
& - 48 \operatorname{arctanh} \left( \frac{1}{x} \right) \\
& "h(x)", \left( 12 \left( -1 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right)^2 \right) \Bigg/ \left( (x^2 - 1) \left( 1 \right. \right. \\
& \left. \left. - 3 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^4 + 20 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^3 - 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right)^2 \right. \right. \\
& + 48 \operatorname{arctanh} \left( \frac{e^4 - 1}{e^4 + 1} \right) + 3 \operatorname{arctanh} \left( \frac{1}{x} \right)^4 - 20 \operatorname{arctanh} \left( \frac{1}{x} \right)^3 + 48 \operatorname{arctanh} \left( \frac{1}{x} \right)^2 \\
& \left. \left. - 48 \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \right) \\
& "mean and variance", 12 \left( \int_{\frac{e^4 + 1}{e^4 - 1}}^{\frac{e^2 + 1}{e^2 - 1}} \frac{x \left( -1 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right)^2}{x^2 - 1} dx \right), 12 \left( \int_{\frac{e^4 + 1}{e^4 - 1}}^{\frac{e^2 + 1}{e^2 - 1}} \frac{x^2 \left( -1 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right)^2}{x^2 - 1} dx \right) \\
& - 144 \left( \int_{\frac{e^4 + 1}{e^4 - 1}}^{\frac{e^2 + 1}{e^2 - 1}} \frac{x \left( -1 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right)^2}{x^2 - 1} dx \right)^2
\end{aligned}$$

$$\begin{aligned}
 \text{"MF", } & \int_{\frac{-e^{-2}-e^2}{e^{-2}-e^2}}^{\frac{e+e^{-1}}{e-e^{-1}}} \frac{12 x^{\sim} \left( -1 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right)^2}{x^2 - 1} dx \\
 \text{"MGF", 12} & \left[ \int_{\frac{e^4+1}{e^4-1}}^{\frac{e^2+1}{e^2-1}} \frac{e^{tx} \left( -1 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right) \left( -2 + \operatorname{arctanh} \left( \frac{1}{x} \right) \right)^2}{x^2 - 1} dx \right]
 \end{aligned}$$

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

$$\frac{-e^{-2}-e^2}{e^{-2}-e^2}$$

*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*

$$\frac{-e^{-2}-e^2}{e^{-2}-e^2}$$

*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*

```

12\, , {\frac { \left( -1+\operatorname{arctanh} \left( {x}^{-1} \right) \right) \left( -2+\operatorname{arctanh} \left( {x}^{-1} \right) \right) ^2}{x^2-1}} \\
"i is", 17,

```

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

$$\begin{aligned} l &:= 0 \\ u &:= \infty \end{aligned}$$

$$Temp := \left[ \left[ y \sim \rightarrow \frac{12 \left( -1 + \operatorname{arcsinh}\left(\frac{1}{y}\right) \right) \left( -2 + \operatorname{arcsinh}\left(\frac{1}{y}\right) \right)^2}{\sqrt{y^2 + 1}} \right], \left[ \frac{2}{-e^{-2} + e^2}, \frac{2}{e - e^{-1}} \right], ["Continuous", "PDF"] \right]$$

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

$$"g(x)", \frac{1}{\sinh(x+1)}, "base", 12 x (1-x)^2, "BetaRV(2,3)"$$

$$"f(x)", \frac{12 \left( -1 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right) \left( -2 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right)^2}{\sqrt{x^2 + 1} |x|}$$

$$\begin{aligned} "F(x)", & 496 + 3 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^4 - 48 \ln(x) + 576 \ln(2) \\ & - 44 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^3 - 576 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) + 48 \ln(1 \\ & + \sqrt{x^2 + 1}) - 48 \ln(1 + \sqrt{x^2 + 1})^2 + 20 \ln(1 + \sqrt{x^2 + 1})^3 - 20 \ln(x)^3 - 3 \ln(1 \\ & + \sqrt{x^2 + 1})^4 - 3 \ln(x)^4 - 48 \ln(x)^2 + 96 \ln(1 + \sqrt{x^2 + 1}) \ln(x) - 60 \ln(1 \\ & + \sqrt{x^2 + 1})^2 \ln(x) + 60 \ln(1 + \sqrt{x^2 + 1}) \ln(x)^2 + 12 \ln(1 + \sqrt{x^2 + 1})^3 \ln(x) \\ & - 18 \ln(1 + \sqrt{x^2 + 1})^2 \ln(x)^2 + 12 \ln(1 + \sqrt{x^2 + 1}) \ln(x)^3 + 240 \ln(2)^2 \\ & - 12 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^3 \ln(2) + 18 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 \ln(2)^2 \\ & - 12 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \ln(2)^3 + 132 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 \ln(2) \\ & - 132 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \ln(2)^2 - 480 \ln(2) \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \\ & + 240 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 + 3 \ln(2)^4 + 44 \ln(2)^3 \end{aligned}$$

$$\begin{aligned} "S(x)", & -495 - 3 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^4 + 48 \ln(x) - 576 \ln(2) \\ & + 44 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^3 + 576 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) - 48 \ln(1 \\ & + \sqrt{x^2 + 1}) + 48 \ln(1 + \sqrt{x^2 + 1})^2 - 20 \ln(1 + \sqrt{x^2 + 1})^3 + 20 \ln(x)^3 + 3 \ln(1 \\ & + \sqrt{x^2 + 1})^4 + 3 \ln(x)^4 + 48 \ln(x)^2 - 96 \ln(1 + \sqrt{x^2 + 1}) \ln(x) + 60 \ln(1 \\ & + \sqrt{x^2 + 1})^2 \ln(x) - 60 \ln(1 + \sqrt{x^2 + 1}) \ln(x)^2 - 12 \ln(1 + \sqrt{x^2 + 1})^3 \ln(x) \\ & + 18 \ln(1 + \sqrt{x^2 + 1})^2 \ln(x)^2 - 12 \ln(1 + \sqrt{x^2 + 1}) \ln(x)^3 - 240 \ln(2)^2 \\ & + 12 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^3 \ln(2) - 18 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 \ln(2)^2 \end{aligned}$$

$$\begin{aligned}
& + 12 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \ln(2)^3 - 132 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 \ln(2) \\
& + 132 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \ln(2)^2 + 480 \ln(2) \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \\
& - 240 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 - 3 \ln(2)^4 - 44 \ln(2)^3 \\
& "h(x)", - \left( 12 \left( -1 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right) \left( -2 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right)^2 \right) \Big/ \left( \sqrt{x^2 + 1} |x| \right) \quad (495) \\
& + 3 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^4 - 48 \ln(x) + 576 \ln(2) - 44 \ln(\sqrt{e^8 + 2e^4 + 1} \\
& + e^4 - 1)^3 - 576 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) + 48 \ln(1 + \sqrt{x^2 + 1}) - 48 \ln(1 \\
& + \sqrt{x^2 + 1})^2 + 20 \ln(1 + \sqrt{x^2 + 1})^3 - 20 \ln(x)^3 - 3 \ln(1 + \sqrt{x^2 + 1})^4 - 3 \ln(x)^4 \\
& - 48 \ln(x)^2 + 96 \ln(1 + \sqrt{x^2 + 1}) \ln(x) - 60 \ln(1 + \sqrt{x^2 + 1})^2 \ln(x) + 60 \ln(1 \\
& + \sqrt{x^2 + 1}) \ln(x)^2 + 12 \ln(1 + \sqrt{x^2 + 1})^3 \ln(x) - 18 \ln(1 + \sqrt{x^2 + 1})^2 \ln(x)^2 \\
& + 12 \ln(1 + \sqrt{x^2 + 1}) \ln(x)^3 + 240 \ln(2)^2 - 12 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^3 \ln(2) \\
& + 18 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 \ln(2)^2 - 12 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \ln(2)^3 \\
& + 132 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 \ln(2) - 132 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) \ln(2)^2 \\
& - 480 \ln(2) \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1) + 240 \ln(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2 \\
& + 3 \ln(2)^4 + 44 \ln(2)^3 \Big)
\end{aligned}$$

$$\begin{aligned}
& \text{"mean and variance", } -48 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) + 48 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} \\
& - 2e - 1) + 84 \operatorname{polylog}\left(2, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) + 96 \operatorname{polylog}\left(2, \right. \\
& \left. - \frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) - 96 \operatorname{polylog}\left(2, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 \right. \\
& \left. + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) - 84 \operatorname{polylog}\left(2, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) \\
& + 144 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2 - 1) - 144 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \\
& - 48 \operatorname{polylog}\left(3, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \\
& + 48 \operatorname{arctanh}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}}\right) - 24 \operatorname{polylog}\left(3, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 \right. \\
& \left. + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) + 72 \operatorname{polylog}\left(4, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \\
& + 24 \operatorname{polylog}\left(3, -\frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) \\
& - 48 \operatorname{arctanh}\left(\frac{2e}{\sqrt{e^4 + 2e^2 + 1}}\right) + 192 \operatorname{dilog}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1}\right)
\end{aligned}$$

$$\begin{aligned}
& + 48 \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) - 72 \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) - 48 \operatorname{dilog} \left( \frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2} \right) \\
& + 48 \operatorname{polylog} \left( 3, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \\
& - 192 \operatorname{dilog} \left( \frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1} \right) + 72 \operatorname{polylog} \left( 4, -\frac{1}{2} e \right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) - 72 \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) - 96 I\pi, 24 - 12 I\pi + 9216 \pi^2 + 84 \ln(e^2 + \sqrt{e^4 + 2 e^2 + 1} + 2 e - 1) \\
& + 84 \ln(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 2 e - 1) + 24 \ln(2) \\
& - 6912 \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) - 4608 \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \operatorname{dilog} \left( \frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2} \right) \\
& - 18432 \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \operatorname{dilog} \left( \frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1} \right) \\
& + 6912 \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. + \frac{1}{2} e^{-1} \right) - 6912 \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) + 8064 \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \operatorname{polylog} \left( 2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) + 9216 \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \\
& - 18432 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \\
& + 27648 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right)
\end{aligned}$$

$$\begin{aligned}
& + 18432 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{dilog} \left( \frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2} \right) \\
& + 73728 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{dilog} \left( \frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1} \right) \\
& - 27648 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. + \frac{1}{2} e^{-1} \right) + 27648 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{polylog} \left( 4, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \\
& - 32256 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{polylog} \left( 2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) - 36864 \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \\
& + 6912 \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \\
& + 4608 \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \operatorname{dilog} \left( \frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2} \right) \\
& + 18432 \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \operatorname{dilog} \left( \frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1} \right) \\
& - 6912 \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e \right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \\
& + 6912 \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) - 8064 \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \operatorname{polylog} \left( 2, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right)
\end{aligned}$$

$$\begin{aligned}
& -9216 \operatorname{dilog}\left(\frac{4 e^2}{\left(e^2+\sqrt{e^4+2 e^2+1}-1\right)^2}\right) \operatorname{polylog}\left(2, -\frac{1}{2} e^2\right. \\
& \left.-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}+\frac{1}{2} e^{-2}\right)-6912 \operatorname{polylog}\left(4, -\frac{1}{2} e^2-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}\right. \\
& \left.+\frac{1}{2} e^{-2}\right) \operatorname{dilog}\left(\frac{4 e^4}{\left(\sqrt{e^8+2 e^4+1}+e^4-1\right)^2}\right)-27648 \operatorname{polylog}\left(4, -\frac{1}{2} e^2\right. \\
& \left.-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}+\frac{1}{2} e^{-2}\right) \operatorname{dilog}\left(\frac{2 e}{e^2+\sqrt{e^4+2 e^2+1}-1}\right) \\
& +10368 \operatorname{polylog}\left(4, -\frac{1}{2} e^2-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}+\frac{1}{2} e^{-2}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e\right. \\
& \left.-\frac{1}{2} \sqrt{e^4+2 e^2+1} e^{-1}+\frac{1}{2} e^{-1}\right)-10368 \operatorname{polylog}\left(4, -\frac{1}{2} e^2\right. \\
& \left.-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}+\frac{1}{2} e^{-2}\right) \operatorname{polylog}\left(4, \frac{1}{2} e+\frac{1}{2} \sqrt{e^4+2 e^2+1} e^{-1}-\frac{1}{2} e^{-1}\right) \\
& +12096 \operatorname{polylog}\left(4, -\frac{1}{2} e^2-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}+\frac{1}{2} e^{-2}\right) \operatorname{polylog}\left(2, \frac{1}{2} e\right. \\
& \left.+\frac{1}{2} \sqrt{e^4+2 e^2+1} e^{-1}-\frac{1}{2} e^{-1}\right)+13824 \operatorname{polylog}\left(4, -\frac{1}{2} e^2\right. \\
& \left.-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}+\frac{1}{2} e^{-2}\right) \operatorname{polylog}\left(2, -\frac{1}{2} e^2-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}\right. \\
& \left.+\frac{1}{2} e^{-2}\right) \\
& -18432 \operatorname{dilog}\left(\frac{4 e^4}{\left(\sqrt{e^8+2 e^4+1}+e^4-1\right)^2}\right) \operatorname{dilog}\left(\frac{2 e}{e^2+\sqrt{e^4+2 e^2+1}-1}\right) \\
& +6912 \operatorname{dilog}\left(\frac{4 e^4}{\left(\sqrt{e^8+2 e^4+1}+e^4-1\right)^2}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e\right. \\
& \left.-\frac{1}{2} \sqrt{e^4+2 e^2+1} e^{-1}+\frac{1}{2} e^{-1}\right) \\
& -6912 \operatorname{dilog}\left(\frac{4 e^4}{\left(\sqrt{e^8+2 e^4+1}+e^4-1\right)^2}\right) \operatorname{polylog}\left(4, \frac{1}{2} e+\frac{1}{2} \sqrt{e^4+2 e^2+1} e^{-1}\right. \\
& \left.-\frac{1}{2} e^{-1}\right)+8064 \operatorname{dilog}\left(\frac{4 e^4}{\left(\sqrt{e^8+2 e^4+1}+e^4-1\right)^2}\right) \operatorname{polylog}\left(2, \frac{1}{2} e\right. \\
& \left.+\frac{1}{2} \sqrt{e^4+2 e^2+1} e^{-1}-\frac{1}{2} e^{-1}\right) \\
& +9216 \operatorname{dilog}\left(\frac{4 e^4}{\left(\sqrt{e^8+2 e^4+1}+e^4-1\right)^2}\right) \operatorname{polylog}\left(2, -\frac{1}{2} e^2\right. \\
& \left.-\frac{1}{2} \sqrt{e^8+2 e^4+1} e^{-2}+\frac{1}{2} e^{-2}\right)
\end{aligned}$$

$$\begin{aligned}
& + 27648 \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) \operatorname{polylog}\left(4, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1}\right. \\
& \left. + \frac{1}{2}e^{-1}\right) - 27648 \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) \operatorname{polylog}\left(4, \frac{1}{2}e\right. \\
& \left. + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \\
& + 32256 \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) \operatorname{polylog}\left(2, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1}\right. \\
& \left. - \frac{1}{2}e^{-1}\right) + 36864 \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) \operatorname{polylog}\left(2, -\frac{1}{2}e^2\right. \\
& \left. - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) + 10368 \operatorname{polylog}\left(4, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1}\right. \\
& \left. + \frac{1}{2}e^{-1}\right) \operatorname{polylog}\left(4, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) - 12096 \operatorname{polylog}\left(4,\right. \\
& \left. - \frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) \operatorname{polylog}\left(2, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1}\right. \\
& \left. - \frac{1}{2}e^{-1}\right) - 13824 \operatorname{polylog}\left(4, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) \operatorname{polylog}\left(2,\right. \\
& \left. - \frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) + 12096 \operatorname{polylog}\left(4, \frac{1}{2}e\right. \\
& \left. + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \operatorname{polylog}\left(2, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \\
& + 13824 \operatorname{polylog}\left(4, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \operatorname{polylog}\left(2, -\frac{1}{2}e^2\right. \\
& \left. - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) - 16128 \operatorname{polylog}\left(2, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1}\right. \\
& \left. - \frac{1}{2}e^{-1}\right) \operatorname{polylog}\left(2, -\frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) - 36864 \operatorname{polylog}\left(2,\right. \\
& \left. - \frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) \\
& + 13824 \operatorname{polylog}\left(2, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \operatorname{polylog}\left(4, -\frac{1}{2}e\right. \\
& \left. - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) - 13824 \operatorname{polylog}\left(2, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2\right. \\
& \left. + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \operatorname{polylog}\left(4, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \\
& + 16128 \operatorname{polylog}\left(2, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \operatorname{polylog}\left(2, \frac{1}{2}e\right. \\
& \left. + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) + 18432 \operatorname{polylog}\left(2, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2\right. \\
& \left. + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \operatorname{polylog}\left(2, -\frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right)
\end{aligned}$$

$$\begin{aligned}
& + 1152 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{polylog}\left(3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right) - 2304 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{polylog}\left(3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) \\
& - 4032 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) + 2304 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{polylog}\left(3, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \\
& + 2304 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{arctanh}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}}\right) - 96 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} - 2 e^2 - 1) + 96 \ln(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1) - 96 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \\
& + 3456 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) - 2304 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{arctanh}\left(\frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}}\right) + 9216 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{dilog}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1}\right) \\
& + 2304 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{dilog}\left(\frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2}\right) - 3456 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right) - 2304 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{dilog}\left(\frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2}\right) - 9216 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{dilog}\left(\frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1}\right) \\
& + 3456 \operatorname{polylog}\left(3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right)
\end{aligned}$$

$$\begin{aligned}
& -\frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \Big) - 3456 \operatorname{polylog} \left( 3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \\
& + 4032 \operatorname{polylog} \left( 3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 2, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) + 4608 \operatorname{polylog} \left( 3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \\
& + 2304 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 3, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) + 4032 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) - 2304 \operatorname{polylog} \left( 3, \right. \\
& \left. -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 3, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. + \frac{1}{2} e^{-1} \right) - 2304 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) \operatorname{arctanh} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}} \right) - 3456 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) + 2304 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) \operatorname{arctanh} \left( \frac{2e}{\sqrt{e^4 + 2e^2 + 1}} \right) - 9216 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{dilog} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1} \right) \\
& - 2304 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) \operatorname{dilog} \left( \frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2} \right) + 3456 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) + 2304 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) \operatorname{dilog} \left( \frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2} \right) + 9216 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 \right.
\end{aligned}$$

$$\begin{aligned}
& -\frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \Big) \operatorname{dilog} \left( \frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1} \right) \\
& - 3456 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e \right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) + 3456 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) - 4032 \operatorname{polylog} \left( 3, \right. \\
& \left. -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) - 4608 \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \operatorname{polylog} \left( 2, \right. \\
& \left. -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) - 8064 \operatorname{polylog} \left( 3, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. + \frac{1}{2} e^{-1} \right) + 4608 \operatorname{polylog} \left( 3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \operatorname{polylog} \left( 3, -\frac{1}{2} \right. \\
& \left. e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) + 4608 \operatorname{polylog} \left( 3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) \operatorname{arctanh} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}} \right) + 6912 \operatorname{polylog} \left( 3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) - 4608 \operatorname{polylog} \left( 3, \frac{1}{2} \right. \\
& \left. e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \operatorname{arctanh} \left( \frac{2e}{\sqrt{e^4 + 2e^2 + 1}} \right) + 18432 \operatorname{polylog} \left( 3, \right. \\
& \left. \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \operatorname{dilog} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1} \right) \\
& + 4608 \operatorname{polylog} \left( 3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) \operatorname{dilog} \left( \frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2} \right) - 6912 \operatorname{polylog} \left( 3, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) - 4608 \operatorname{polylog} \left( 3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) \operatorname{dilog} \left( \frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2} \right) - 18432 \operatorname{polylog} \left( 3, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \operatorname{dilog} \left( \frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1} \right)
\end{aligned}$$

$$\begin{aligned}
& + 6912 \operatorname{polylog}\left(3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) - 6912 \operatorname{polylog}\left(3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) + 8064 \operatorname{polylog}\left(3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) \\
& + 9216 \operatorname{polylog}\left(3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(2, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right) + 8064 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(3, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) + 8064 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{arctanh}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}}\right) \\
& + 12096 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) - 8064 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{arctanh}\left(\frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}}\right) + 32256 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{dilog}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1}\right) \\
& + 8064 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{dilog}\left(\frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2}\right) - 12096 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right) - 8064 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{dilog}\left(\frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2}\right) - 32256 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{dilog}\left(\frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1}\right) \\
& + 12096 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) \operatorname{polylog}\left(4, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) - 12096 \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right)
\end{aligned}$$

$$\begin{aligned}
& + \frac{1}{2} e^{-1} \left) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) + 14112 \operatorname{polylog} \left( 2, \right. \\
& - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) \operatorname{polylog} \left( 2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& - \frac{1}{2} e^{-1} \left) + 16128 \operatorname{polylog} \left( 2, - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \operatorname{polylog} \left( 2, \right. \\
& - \frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \left) - 4608 \operatorname{polylog} \left( 3, - \frac{1}{2} e \right. \\
& - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) \operatorname{arctanh} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}} \right) - 6912 \operatorname{polylog} \left( 3, - \frac{1}{2} \right. \\
& e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) \operatorname{polylog} \left( 4, - \frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \left) + 4608 \operatorname{polylog} \left( 3, - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& + \frac{1}{2} e^{-1} \left) \operatorname{arctanh} \left( \frac{2e}{\sqrt{e^4 + 2e^2 + 1}} \right) - 18432 \operatorname{polylog} \left( 3, - \frac{1}{2} e \right. \\
& - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) \operatorname{dilog} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1} \right) \\
& - 4608 \operatorname{polylog} \left( 3, - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& + \frac{1}{2} e^{-1} \left) \operatorname{dilog} \left( \frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2} \right) + 6912 \operatorname{polylog} \left( 3, - \frac{1}{2} e \right. \\
& - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) \operatorname{polylog} \left( 4, - \frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& + \frac{1}{2} e^{-2} \left) + 4608 \operatorname{polylog} \left( 3, - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& + \frac{1}{2} e^{-1} \left) \operatorname{dilog} \left( \frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2} \right) + 18432 \operatorname{polylog} \left( 3, - \frac{1}{2} e \right. \\
& - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) \operatorname{dilog} \left( \frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1} \right) \\
& - 6912 \operatorname{polylog} \left( 3, - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \operatorname{polylog} \left( 4, - \frac{1}{2} e \right. \\
& - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) + 6912 \operatorname{polylog} \left( 3, - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& + \frac{1}{2} e^{-1} \left) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) - 8064 \operatorname{polylog} \left( 3, - \frac{1}{2} \right. \\
& e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \left) \operatorname{polylog} \left( 2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& - \frac{1}{2} e^{-1} \left) - 9216 \operatorname{polylog} \left( 3, - \frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \operatorname{polylog} \left( 2, \right.
\end{aligned}$$

$$\begin{aligned}
& -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \Big) \\
& - 6912 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \\
& + 4608 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) \\
& - 18432 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \\
& - 4608 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) \\
& + 6912 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) + 4608 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{dilog} \left( \frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2} \right) \\
& + 18432 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{dilog} \left( \frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1} \right) \\
& - 6912 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. + \frac{1}{2} e^{-1} \right) + 6912 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) - 8064 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{polylog} \left( 2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) - 9216 \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) + 6912 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) - 27648 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} \right. \\
& \left. + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \\
& - 6912 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right)
\end{aligned}$$

$$\begin{aligned}
& + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \Big) \operatorname{dilog} \left( \frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2} \right) + 10368 \operatorname{polylog} \left( 4, \right. \\
& \left. - \frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) + 6912 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{dilog} \left( \frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2} \right) + 27648 \operatorname{polylog} \left( 4, \right. \\
& \left. - \frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{dilog} \left( \frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1} \right) \\
& - 10368 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e \right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) + 10368 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) \\
& - 12096 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 2, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) - 13824 \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \\
& + 18432 \operatorname{arctanh} \left( \frac{2e}{\sqrt{e^4 + 2e^2 + 1}} \right) \operatorname{dilog} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1} \right) \\
& + 4608 \operatorname{arctanh} \left( \frac{2e}{\sqrt{e^4 + 2e^2 + 1}} \right) \operatorname{dilog} \left( \frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2} \right) - 13824 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2 - 1) + 4608 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) + 13824 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) + 9216 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) \\
& + 2304 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog} \left( 3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) - 2304 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) + 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e \\
& - 1) \operatorname{polylog} \left( 3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) + 8064 \ln(e^2
\end{aligned}$$

$$\begin{aligned}
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1 \Big) \operatorname{polylog}\left(2, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) \\
& - 96 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1) - 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e \\
& - 1) \operatorname{polylog}\left(3, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) - 4608 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{arctanh}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}}\right) - 6912 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog}\left(4, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \\
& + 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{arctanh}\left(\frac{2e}{\sqrt{e^4 + 2e^2 + 1}}\right) - 18432 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{dilog}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1}\right) - 4608 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{dilog}\left(\frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2}\right) + 6912 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog}\left(4, -\frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) \\
& + 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{dilog}\left(\frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2}\right) \\
& + 18432 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) \\
& - 6912 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog}\left(4, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} \right. \\
& \left. + \frac{1}{2}e^{-1}\right) + 6912 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog}\left(4, \frac{1}{2}e \right. \\
& \left. + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) - 8064 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e \\
& - 1) \operatorname{polylog}\left(2, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) - 9216 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} - 2e - 1) \operatorname{polylog}\left(2, -\frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) \\
& + 13824 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2 - 1) \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \\
& + 41472 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2 - 1) \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \\
& + 27648 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2 - 1) \operatorname{polylog}\left(2, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 \right. \\
& \left. + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) + 6912 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2 - 1) \operatorname{polylog}\left(3, \right. \\
& \left. - \frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) - 6912 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2
\end{aligned}$$

$$\begin{aligned}
& -1 \operatorname{polylog}\left(3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right) + 13824 \ln(e^4 \\
& + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{polylog}\left(3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) \\
& + 24192 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{polylog}\left(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \\
& + \frac{1}{2} e^{-1}\right) - 13824 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{polylog}\left(3, -\frac{1}{2} e \\
& - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right) - 13824 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 \\
& - 1) \operatorname{arctanh}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}}\right) - 20736 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 \\
& - 1) \operatorname{polylog}\left(4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right) + 13824 \ln(e^4 \\
& + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{arctanh}\left(\frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}}\right) - 55296 \ln(e^4 \\
& + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{dilog}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1}\right) - 13824 \ln(e^4 \\
& + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{dilog}\left(\frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2}\right) + 20736 \ln(e^4 \\
& + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{polylog}\left(4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right) \\
& + 13824 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{dilog}\left(\frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2}\right) \\
& + 55296 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{dilog}\left(\frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1}\right) \\
& - 20736 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{polylog}\left(4, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} \\
& + \frac{1}{2} e^{-1}\right) + 20736 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{polylog}\left(4, \frac{1}{2} e \\
& + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) - 24192 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 \\
& - 1) \operatorname{polylog}\left(2, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right) - 27648 \ln(e^4 \\
& + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1) \operatorname{polylog}\left(2, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right) \\
& - 13824 \ln(e^2 + \sqrt{e^4 + 2 e^2 + 1} + 2 e - 1) \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} - 2 e^2 - 1) \\
& - 9216 \ln(e^2 + \sqrt{e^4 + 2 e^2 + 1} + 2 e - 1) \operatorname{polylog}\left(2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2
\end{aligned}$$

$$\begin{aligned}
& + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \Big) - 2304 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(3, \\
& - \frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \Big) + 2304 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \\
& - 1) \operatorname{polylog}(3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \Big) - 4608 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \Big) \\
& - 8064 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \\
& + \frac{1}{2} e^{-1} \Big) + 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(3, -\frac{1}{2} e \\
& - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \Big) + 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \\
& - 1) \operatorname{arctanh}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}}\right) + 6912 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(4, \\
& -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \Big) - 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \\
& - 1) \operatorname{arctanh}\left(\frac{2e}{\sqrt{e^4 + 2e^2 + 1}}\right) + 18432 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \\
& - 1) \operatorname{dilog}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1}\right) + 4608 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \\
& - 1) \operatorname{dilog}\left(\frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2}\right) - 6912 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \\
& - 1) \operatorname{polylog}(4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \Big) - 4608 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{dilog}\left(\frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2}\right) - 18432 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) + 6912 \ln(e^2 \\
& + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(4, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \Big) \\
& - 6912 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(4, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \\
& - \frac{1}{2} e^{-1} \Big) + 8064 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e - 1) \operatorname{polylog}(2, \frac{1}{2} e \\
& + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \Big) + 9216 \ln(e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \\
& - 1) \operatorname{polylog}(2, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \Big) - 27648 \ln(e^4
\end{aligned}$$

$$\begin{aligned}
& + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1 \Big) \operatorname{polylog}\left(2, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \\
& - 6912 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(3, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \\
& + 6912 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(3, -\frac{1}{2}e^2 - \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2} + \frac{1}{2}e^{-2}\right) \\
& - 13824 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(3, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \\
& + 24192 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(2, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) \\
& + 13824 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(3, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) \\
& + 13824 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{arctanh}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}}\right) \\
& + 20736 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(4, -\frac{1}{2}e^{-2} + \frac{1}{2}e^2 + \frac{1}{2}\sqrt{e^8 + 2e^4 + 1}e^{-2}\right) \\
& - 13824 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{arctanh}\left(\frac{2e}{\sqrt{e^4 + 2e^2 + 1}}\right) \\
& + 55296 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{dilog}\left(\frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1}\right) \\
& + 13824 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{dilog}\left(\frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2}\right) \\
& - 20736 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{dilog}\left(\frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2}\right) \\
& - 55296 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{dilog}\left(\frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1}\right) \\
& + 20736 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(4, -\frac{1}{2}e - \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} + \frac{1}{2}e^{-1}\right) \\
& - 20736 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(4, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \\
& + 24192 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1) \operatorname{polylog}\left(2, \frac{1}{2}e + \frac{1}{2}\sqrt{e^4 + 2e^2 + 1}e^{-1} - \frac{1}{2}e^{-1}\right) \\
& + 27648 \ln(e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1)
\end{aligned}$$

$$\begin{aligned}
& -1 \left( \operatorname{polylog} \left( 2, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) - 4608 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} \right. \right. \\
& \left. \left. + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) + 4608 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) \\
& - 9216 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 3, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) - 16128 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \\
& + 9216 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 3, -\frac{1}{2} e \right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) + 9216 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{arctanh} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}} \right) + 13824 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} \right. \\
& \left. + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) - 9216 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{arctanh} \left( \frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}} \right) + 36864 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} \right. \\
& \left. + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{dilog} \left( \frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1} \right) \\
& + 9216 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{dilog} \left( \frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2} \right) - 13824 \operatorname{polylog} \left( 2, \right. \\
& \left. - \frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right) - 9216 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right) \operatorname{dilog} \left( \frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2} \right) + 96 \ln(e^2 + 1) \\
& - 9216 \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \right)^2 - 576 \operatorname{polylog} \left( 3, \right.
\end{aligned}$$

$$\begin{aligned}
& -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} \Big)^2 - 576 \operatorname{polylog}\left(3, -\frac{1}{2} e^2\right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right)^2 - 2304 \operatorname{polylog}\left(3, \frac{1}{2} e\right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right)^2 - 7056 \operatorname{polylog}\left(2, -\frac{1}{2} e\right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right)^2 - 2304 \operatorname{polylog}\left(3, -\frac{1}{2} e\right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right)^2 - 2304 \operatorname{arctanh}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1}}\right)^2 \\
& - 5184 \operatorname{polylog}\left(4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2}\right)^2 \\
& - 2304 \operatorname{arctanh}\left(\frac{2 e}{\sqrt{e^4 + 2 e^2 + 1}}\right)^2 - 36864 \operatorname{dilog}\left(\frac{2 e^2}{\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1}\right)^2 \\
& - 2304 \operatorname{dilog}\left(\frac{4 e^2}{(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1)^2}\right)^2 - 5184 \operatorname{polylog}\left(4, -\frac{1}{2} e^2\right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right)^2 - 2304 \operatorname{dilog}\left(\frac{4 e^4}{(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1)^2}\right)^2 \\
& - 36864 \operatorname{dilog}\left(\frac{2 e}{e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1}\right)^2 - 5184 \operatorname{polylog}\left(4, -\frac{1}{2} e\right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} + \frac{1}{2} e^{-1}\right)^2 - 5184 \operatorname{polylog}\left(4, \frac{1}{2} e\right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right)^2 - 7056 \operatorname{polylog}\left(2, \frac{1}{2} e\right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2 e^2 + 1} e^{-1} - \frac{1}{2} e^{-1}\right)^2 - 9216 \operatorname{polylog}\left(2, -\frac{1}{2} e^2\right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2 e^4 + 1} e^{-2} + \frac{1}{2} e^{-2}\right)^2 - 2304 \ln(e^2 + \sqrt{e^4 + 2 e^2 + 1} + 2 e - 1)^2 \\
& - 20736 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} - 2 e^2 - 1)^2 - 2304 \ln(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 2 e \\
& - 1)^2 - 20736 \ln(e^4 + \sqrt{e^8 + 2 e^4 + 1} + 2 e^2 - 1)^2 + 12 \operatorname{polylog}\left(2, \frac{1}{4} \left(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1\right)^2 e^{-4}\right) \\
& + 18 \operatorname{polylog}\left(3, \frac{1}{4} \left(e^2 + \sqrt{e^4 + 2 e^2 + 1} - 1\right)^2 e^{-2}\right) - 18 \operatorname{polylog}\left(3, \frac{1}{4} \left(\sqrt{e^8 + 2 e^4 + 1} + e^4 - 1\right)^2 e^{-4}\right) + 24 \operatorname{polylog}\left(2,
\end{aligned}$$

$$\begin{aligned}
& \frac{1}{4} \left( e^2 + \sqrt{e^4 + 2e^2 + 1} - 1 \right)^2 e^{-2} \Big) - 9216 I \pi \operatorname{polylog} \left( 3, \frac{1}{2} e + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} \right. \\
& \left. - \frac{1}{2} e^{-1} \right) - 16128 I \pi \operatorname{polylog} \left( 2, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \\
& + 9216 I \pi \operatorname{polylog} \left( 3, -\frac{1}{2} e - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) \\
& + 9216 I \pi \operatorname{arctanh} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1}} \right) + 13824 I \pi \operatorname{polylog} \left( 4, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) - 9216 I \pi \operatorname{arctanh} \left( \frac{2e}{\sqrt{e^4 + 2e^2 + 1}} \right) \\
& + 36864 I \pi \operatorname{dilog} \left( \frac{2e^2}{\sqrt{e^8 + 2e^4 + 1} + e^4 - 1} \right) \\
& + 9216 I \pi \operatorname{dilog} \left( \frac{4e^2}{(e^2 + \sqrt{e^4 + 2e^2 + 1} - 1)^2} \right) - 13824 I \pi \operatorname{polylog} \left( 4, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) - 9216 I \pi \operatorname{dilog} \left( \frac{4e^4}{(\sqrt{e^8 + 2e^4 + 1} + e^4 - 1)^2} \right) \\
& - 36864 I \pi \operatorname{dilog} \left( \frac{2e}{e^2 + \sqrt{e^4 + 2e^2 + 1} - 1} \right) + 13824 I \pi \operatorname{polylog} \left( 4, -\frac{1}{2} e \right. \\
& \left. - \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} + \frac{1}{2} e^{-1} \right) - 13824 I \pi \operatorname{polylog} \left( 4, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) + 16128 I \pi \operatorname{polylog} \left( 2, \frac{1}{2} e \right. \\
& \left. + \frac{1}{2} \sqrt{e^4 + 2e^2 + 1} e^{-1} - \frac{1}{2} e^{-1} \right) + 18432 I \pi \operatorname{polylog} \left( 2, -\frac{1}{2} e^2 \right. \\
& \left. - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} + \frac{1}{2} e^{-2} \right) + 9216 I \pi \ln \left( e^2 + \sqrt{e^4 + 2e^2 + 1} - 2e - 1 \right) \\
& + 27648 I \pi \ln \left( e^4 + \sqrt{e^8 + 2e^4 + 1} + 2e^2 - 1 \right) - 9216 I \pi \ln \left( e^2 + \sqrt{e^4 + 2e^2 + 1} + 2e \right. \\
& \left. - 1 \right) - 27648 I \pi \ln \left( e^4 + \sqrt{e^8 + 2e^4 + 1} - 2e^2 - 1 \right) - 18432 I \pi \operatorname{polylog} \left( 2, -\frac{1}{2} e^{-2} \right. \\
& \left. + \frac{1}{2} e^2 + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) - 4608 I \pi \operatorname{polylog} \left( 3, -\frac{1}{2} e^{-2} + \frac{1}{2} e^2 \right. \\
& \left. + \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right) + 4608 I \pi \operatorname{polylog} \left( 3, -\frac{1}{2} e^2 - \frac{1}{2} \sqrt{e^8 + 2e^4 + 1} e^{-2} \right. \\
& \left. + \frac{1}{2} e^{-2} \right)
\end{aligned}$$

$$\begin{aligned}
 \text{"MF", } & \int_{\frac{2}{e-1}}^{\frac{2}{e+1}} \frac{12 x^{\sim} \left( -1 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right) \left( -2 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right)^2}{\sqrt{x^2 + 1} |x|} dx \\
 \text{"MGF", 12} & \left( \int_{\frac{2e^2}{e^4-1}}^{\frac{2e}{e^2-1}} \frac{e^{tx} \left( -1 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right) \left( -2 + \operatorname{arcsinh}\left(\frac{1}{x}\right) \right)^2}{\sqrt{x^2 + 1} x} dx \right)
 \end{aligned}$$

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

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

*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*

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

*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*

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

*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*

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

*Resetting high to RV's maximum support value*

```
12, {\frac { \left( -1+\operatorname{arcsinh}\left({x}^{-1}\right) \right) \left( -2+\operatorname{arcsinh}\left({x}^{-1}\right) \right) ^2}{\sqrt {{x}^2+1}} } \\
"i is", 18,
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$$\begin{aligned}
 g &:= t \mapsto \frac{1}{\operatorname{arcsinh}(t+1)} \\
 l &:= 0
 \end{aligned}$$

$$u := \infty$$

$$\begin{aligned}
Temp &:= \left[ \left[ y \sim \right. \right. \\
&\rightarrow \frac{12 \left( \cosh\left(\frac{1}{y}\right)^2 \sinh\left(\frac{1}{y}\right) - 5 \cosh\left(\frac{1}{y}\right)^2 + 7 \sinh\left(\frac{1}{y}\right) + 1 \right) \cosh\left(\frac{1}{y}\right)}{y^2}, \left. \left. \right] \right. \\
&\left. \left. - \frac{1}{\ln(-2 + \sqrt{5})}, \frac{1}{\ln(1 + \sqrt{2})} \right], \left[ \text{"Continuous", "PDF"} \right] \right. \\
&\left. \left. \text{"l and u", 0, } \infty \right. \right. \\
&\left. \left. \text{"g(x)", } \frac{1}{\text{arcsinh}(x + 1)}, \text{"base", } 12 x (1 - x)^2, \text{"BetaRV(2,3)"} \right. \right. \\
&\left. \left. \text{"f(x)", } \frac{12 \left( \cosh\left(\frac{1}{x}\right)^2 \sinh\left(\frac{1}{x}\right) - 5 \cosh\left(\frac{1}{x}\right)^2 + 7 \sinh\left(\frac{1}{x}\right) + 1 \right) \cosh\left(\frac{1}{x}\right)}{x^2} \right. \right. \\
&\left. \left. \text{"F(x)", } -\frac{1}{16} \left( 3 e^{\frac{8}{x}} - 40 e^{\frac{7}{x}} + 180 e^{\frac{6}{x}} - 264 e^{\frac{5}{x}} - 110 e^{\frac{4}{x}} + 264 e^{\frac{3}{x}} + 180 e^{\frac{2}{x}} + 40 e^{\frac{1}{x}} \right. \right. \right. \\
&\left. \left. \left. + 3 \right) e^{-\frac{4}{x}} \right. \right. \\
&\left. \left. \text{"IDF(x)", } \left[ [s \rightarrow 1 / (\ln(\text{RootOf}(3 + 3 Z^8 - 40 Z^7 + 180 Z^6 - 264 Z^5 + (16 s - 110) Z^4 + 264 Z^3 + 180 Z^2 + 40 Z)))} \right], [0, 1], \left[ \text{"Continuous", "IDF"} \right] \right. \right. \\
&\left. \left. \text{"S(x)", } \frac{1}{16} \left( 3 e^{\frac{8}{x}} - 40 e^{\frac{7}{x}} + 180 e^{\frac{6}{x}} - 264 e^{\frac{5}{x}} - 94 e^{\frac{4}{x}} + 264 e^{\frac{3}{x}} + 180 e^{\frac{2}{x}} + 40 e^{\frac{1}{x}} \right. \right. \right. \\
&\left. \left. \left. + 3 \right) e^{-\frac{4}{x}} \right. \right. \\
&\left. \left. \text{"h(x)", } \frac{192 \left( \cosh\left(\frac{1}{x}\right)^2 \sinh\left(\frac{1}{x}\right) - 5 \cosh\left(\frac{1}{x}\right)^2 + 7 \sinh\left(\frac{1}{x}\right) + 1 \right) \cosh\left(\frac{1}{x}\right) e^{\frac{4}{x}}}{x^2 \left( 3 e^{\frac{8}{x}} - 40 e^{\frac{7}{x}} + 180 e^{\frac{6}{x}} - 264 e^{\frac{5}{x}} - 94 e^{\frac{4}{x}} + 264 e^{\frac{3}{x}} + 180 e^{\frac{2}{x}} + 40 e^{\frac{1}{x}} + 3 \right)} \right. \right. \\
&\left. \left. \text{"mean and variance", } -\frac{3}{4} \text{Ei}(1, 4 \ln(-2 + \sqrt{5})) + \frac{3}{4} \text{Ei}(1, -4 \ln(-2 + \sqrt{5})) \right. \right. \\
&\left. \left. - \frac{45}{2} \text{Ei}(1, 2 \ln(-2 + \sqrt{5})) + \frac{45}{2} \text{Ei}(1, -2 \ln(-2 + \sqrt{5})) + \frac{15}{2} \text{Ei}(1, 3 \ln(-2 + \sqrt{5})) \right. \right. \\
&\left. \left. + \frac{15}{2} \text{Ei}(1, -3 \ln(-2 + \sqrt{5})) + \frac{33}{2} \text{Ei}(1, \ln(-2 + \sqrt{5})) + \frac{33}{2} \text{Ei}(1, -\ln(-2 + \sqrt{5})) + \frac{3}{4} \text{Ei}(1, -4 \ln(1 + \sqrt{2})) - \frac{3}{4} \text{Ei}(1, 4 \ln(1 + \sqrt{2})) + \frac{45}{2} \text{Ei}(1, -2 \ln(1 + \sqrt{2})) - \frac{45}{2} \text{Ei}(1, 2 \ln(1 + \sqrt{2})) - \frac{15}{2} \text{Ei}(1, -3 \ln(1 + \sqrt{2})) \right. \right. \\
\end{aligned}$$

$$\begin{aligned}
& -\frac{15}{2} \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) - \frac{33}{2} \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) - \frac{33}{2} \operatorname{Ei}(1, \ln(1 + \sqrt{2})), \\
& -\frac{3}{8} (66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) - 3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) + 90 \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2})) \\
& - 90 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) - 30 \operatorname{Ei}(1, -3 \ln(1 + \sqrt{2})) - 30 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) \\
& - 66 \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) - 66 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) - 8) \operatorname{Ei}(1, -4 \ln(1 + \sqrt{2})) \\
& - \frac{45}{4} (4 + 3 \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5})) - 30 \operatorname{Ei}(1, 3 \ln(-2 + \sqrt{5})) - 66 \operatorname{Ei}(1, \ln(-2 \\
& + \sqrt{5})) - 3 \operatorname{Ei}(1, -4 \ln(1 + \sqrt{2})) + 3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 90 \operatorname{Ei}(1, -2 \ln(1 \\
& + \sqrt{2})) + 90 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, -3 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, 3 \ln(1 \\
& + \sqrt{2})) + 66 \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, \ln(1 + \sqrt{2}))) \operatorname{Ei}(1, 2 \ln(-2 + \sqrt{5})) \\
& + \frac{3}{8} (-8 + 66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) + 3 \operatorname{Ei}(1, -4 \ln(1 + \sqrt{2})) - 3 \operatorname{Ei}(1, 4 \ln(1 \\
& + \sqrt{2})) + 90 \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2})) - 90 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) - 30 \operatorname{Ei}(1, -3 \ln(1 \\
& + \sqrt{2})) - 30 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) - 66 \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) - 66 \operatorname{Ei}(1, \ln(1 \\
& + \sqrt{2}))) \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5})) + \frac{45}{4} (-\operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, -2 \ln(1 \\
& + \sqrt{2})) - 30 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) - 10 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) - 22 \operatorname{Ei}(1, -\ln(1 \\
& + \sqrt{2})) - 22 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + 22 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) - 2) \operatorname{Ei}(1, -3 \ln(1 \\
& + \sqrt{2})) + \frac{33}{2} (1 + 33 \operatorname{Ei}(1, \ln(1 + \sqrt{2}))) \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) + \frac{33}{4} (-2 \\
& - 30 \operatorname{Ei}(1, 3 \ln(-2 + \sqrt{5})) - 66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) - 3 \operatorname{Ei}(1, -4 \ln(1 + \sqrt{2})) \\
& + 3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 90 \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2})) + 90 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) \\
& + 30 \operatorname{Ei}(1, -3 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) \\
& + 66 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + 3 \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5})) + 90 \operatorname{Ei}(1, 2 \ln(-2 + \sqrt{5}))) \\
& \operatorname{Ei}(1, -\ln(-2 + \sqrt{5})) + \frac{45}{4} (-\operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 22 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) \\
& + 22 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) + 2) \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) - \frac{9}{16} \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5}))^2 \\
& - \frac{9}{16} \operatorname{Ei}(1, -4 \ln(-2 + \sqrt{5}))^2 - \frac{2025}{4} \operatorname{Ei}(1, 2 \ln(-2 + \sqrt{5}))^2 - \frac{2025}{4} \operatorname{Ei}(1, \\
& -2 \ln(-2 + \sqrt{5}))^2 - \frac{225}{4} \operatorname{Ei}(1, 3 \ln(-2 + \sqrt{5}))^2 - \frac{225}{4} \operatorname{Ei}(1, -3 \ln(-2 + \sqrt{5}))^2 \\
& - \frac{1089}{4} \operatorname{Ei}(1, \ln(-2 + \sqrt{5}))^2 - \frac{1089}{4} \operatorname{Ei}(1, -\ln(-2 + \sqrt{5}))^2 - \frac{2025}{4} \operatorname{Ei}(1, \\
& 2 \ln(1 + \sqrt{2}))^2 - \frac{225}{4} \operatorname{Ei}(1, -3 \ln(1 + \sqrt{2}))^2 - \frac{225}{4} \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2}))^2 \\
& - \frac{1089}{4} \operatorname{Ei}(1, -\ln(1 + \sqrt{2}))^2 - \frac{1089}{4} \operatorname{Ei}(1, \ln(1 + \sqrt{2}))^2 - \frac{9}{16} \operatorname{Ei}(1, -4 \ln(1
\end{aligned}$$

$$\begin{aligned}
& + \sqrt{2})^2 - \frac{9}{16} \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2}))^2 - \frac{2025}{4} \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2}))^2 - \frac{45}{4} ( \\
& - 3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 90 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) - 30 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) \\
& - 66 \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) - 66 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) - 4) \\
& \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2})) + \frac{3}{4} (-33 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + 33 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) \\
& + 4) \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) + \frac{45}{4} (2 - 22 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) - \operatorname{Ei}(1, -4 \ln(1 \\
& + \sqrt{2})) + \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 30 \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, 2 \ln(1 \\
& + \sqrt{2})) + 10 \operatorname{Ei}(1, -3 \ln(1 + \sqrt{2})) + 10 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) + 22 \operatorname{Ei}(1, -\ln(1 \\
& + \sqrt{2})) + 22 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5}))) \operatorname{Ei}(1, 3 \ln(-2 + \sqrt{5})) \\
& + \frac{33}{2} \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + \frac{45}{4} (-2 - 10 \operatorname{Ei}(1, 3 \ln(-2 + \sqrt{5})) - 22 \operatorname{Ei}(1, \ln(-2 \\
& + \sqrt{5})) - 22 \operatorname{Ei}(1, -\ln(-2 + \sqrt{5})) - \operatorname{Ei}(1, -4 \ln(1 + \sqrt{2})) + \operatorname{Ei}(1, 4 \ln(1 \\
& + \sqrt{2})) - 30 \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) + 10 \operatorname{Ei}(1, -3 \ln(1 \\
& + \sqrt{2})) + 10 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) + 22 \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) + 22 \operatorname{Ei}(1, \ln(1 \\
& + \sqrt{2})) + \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5})) + 30 \operatorname{Ei}(1, 2 \ln(-2 + \sqrt{5})) - 30 \operatorname{Ei}(1, -2 \ln(-2 \\
& + \sqrt{5}))) \operatorname{Ei}(1, -3 \ln(-2 + \sqrt{5})) + \frac{45}{4} (-3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 30 \operatorname{Ei}(1, 3 \ln(1 \\
& + \sqrt{2})) - 66 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) + 4) \operatorname{Ei}(1, 2 \ln(1 \\
& + \sqrt{2})) + \frac{33}{4} (-66 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) - 3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 90 \operatorname{Ei}(1, 2 \ln(1 \\
& + \sqrt{2})) - 30 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) - 2) \operatorname{Ei}(1, -\ln(1 \\
& + \sqrt{2})) + \frac{45}{4} (-4 + 66 \operatorname{Ei}(1, \ln(1 + \sqrt{2})) + 3 \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5})) + 90 \operatorname{Ei}(1, \\
& 2 \ln(-2 + \sqrt{5})) - 30 \operatorname{Ei}(1, 3 \ln(-2 + \sqrt{5})) - 66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) - 66 \operatorname{Ei}(1, \\
& -\ln(-2 + \sqrt{5})) - 3 \operatorname{Ei}(1, -4 \ln(1 + \sqrt{2})) + 3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) - 90 \operatorname{Ei}(1, \\
& -2 \ln(1 + \sqrt{2})) + 90 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, -3 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, \\
& 3 \ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, -\ln(1 + \sqrt{2}))) \operatorname{Ei}(1, -2 \ln(-2 + \sqrt{5})) + \frac{3}{8} (-8 \\
& + 3 \operatorname{Ei}(1, 4 \ln(-2 + \sqrt{5})) + 90 \operatorname{Ei}(1, 2 \ln(-2 + \sqrt{5})) - 90 \operatorname{Ei}(1, -2 \ln(-2 + \sqrt{5})) \\
& - 30 \operatorname{Ei}(1, 3 \ln(-2 + \sqrt{5})) - 30 \operatorname{Ei}(1, -3 \ln(-2 + \sqrt{5})) - 66 \operatorname{Ei}(1, \ln(-2 + \sqrt{5})) \\
& - 66 \operatorname{Ei}(1, -\ln(-2 + \sqrt{5})) - 3 \operatorname{Ei}(1, -4 \ln(1 + \sqrt{2})) + 3 \operatorname{Ei}(1, 4 \ln(1 + \sqrt{2})) \\
& - 90 \operatorname{Ei}(1, -2 \ln(1 + \sqrt{2})) + 90 \operatorname{Ei}(1, 2 \ln(1 + \sqrt{2})) + 30 \operatorname{Ei}(1, -3 \ln(1 + \sqrt{2})) \\
& + 30 \operatorname{Ei}(1, 3 \ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, -\ln(1 + \sqrt{2})) + 66 \operatorname{Ei}(1, \ln(1 + \sqrt{2}))) \operatorname{Ei}(1, \\
& -4 \ln(-2 + \sqrt{5}))
\end{aligned}$$

"MF",

$$\begin{aligned}
& \int_{-\frac{1}{\ln(-2+\sqrt{5})}}^{\frac{1}{\ln(1+\sqrt{2})}} \frac{12 x^{\sim} \left( \cosh\left(\frac{1}{x}\right)^2 \sinh\left(\frac{1}{x}\right) - 5 \cosh\left(\frac{1}{x}\right)^2 + 7 \sinh\left(\frac{1}{x}\right) + 1 \right) \cosh\left(\frac{1}{x}\right)}{x^2} dx \\
& \text{"MGF", 12} \left( \int_{-\frac{1}{\ln(-2+\sqrt{5})}}^{\frac{1}{\ln(1+\sqrt{2})}} \frac{e^{tx} \left( \cosh\left(\frac{1}{x}\right)^2 \sinh\left(\frac{1}{x}\right) - 5 \cosh\left(\frac{1}{x}\right)^2 + 7 \sinh\left(\frac{1}{x}\right) + 1 \right) \cosh\left(\frac{1}{x}\right)}{x^2} dx \right)
\end{aligned}$$

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

$$-\frac{1}{\ln(-2+\sqrt{5})}$$

*Resetting low to RV's minimum support value*

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

*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*

$$-\frac{1}{\ln(-2+\sqrt{5})}$$

*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*

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

*Resetting high to RV's maximum support value*

```
12\, {\frac { \left( \cosh \left( {x}^{-1} \right) \right) ^{2} \sinh \left( {x}^{-1} \right) ^{-5}, \left( \cosh \left( {x}^{-1} \right) \right) ^{2}+7\, \sinh \left( {x}^{-1} \right) ^{-1} \cosh \left( {x}^{-1} \right) }{{\left( \cosh \left( {x}^{-1} \right) \right) ^{2}}}}
```

"i is", 19,

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

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

$$l := 0$$

$$u := \infty$$

$$\begin{aligned} \text{Temp} := \left[ \left[ y \mapsto \frac{12 \operatorname{arccsch} \left( \frac{1}{y-1} \right) \left( -1 + \operatorname{arccsch} \left( \frac{1}{y-1} \right) \right)^2}{\sqrt{y^2 - 2y + 2}} \right], \left[ 1, -\frac{1}{2} e^{-1} + \frac{1}{2} e \right. \right. \\ \left. \left. + 1 \right], \left[ \text{"Continuous"}, \text{"PDF"} \right] \right] \end{aligned}$$

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

$$\text{"g(x)"}, \frac{1}{\operatorname{csch}(x)} + 1, \text{"base"}, 12x(1-x)^2, \text{"BetaRV(2,3)"}$$

$$\text{"f(x)"}, \frac{12 \operatorname{arccsch} \left( \frac{1}{x-1} \right) \left( -1 + \operatorname{arccsch} \left( \frac{1}{x-1} \right) \right)^2}{\sqrt{x^2 - 2x + 2}}$$

$$\text{"F(x)"}, 12 \left( \int_1^x \frac{\operatorname{arccsch} \left( \frac{1}{t-1} \right) \left( -1 + \operatorname{arccsch} \left( \frac{1}{t-1} \right) \right)^2}{\sqrt{t^2 - 2t + 2}} dt \right)$$

$$\text{"S(x)"}, 1 - 12 \left( \int_1^x \frac{\operatorname{arccsch} \left( \frac{1}{t-1} \right) \left( -1 + \operatorname{arccsch} \left( \frac{1}{t-1} \right) \right)^2}{\sqrt{t^2 - 2t + 2}} dt \right)$$

$$\begin{aligned}
& \text{"h(x)", } - \frac{12 \operatorname{arccsch}\left(\frac{1}{x-1}\right) \left(-1 + \operatorname{arccsch}\left(\frac{1}{x-1}\right)\right)^2}{\sqrt{x^2 - 2x + 2} \left( -1 + 12 \left( \int_1^x \frac{\operatorname{arccsch}\left(\frac{1}{t-1}\right) \left(-1 + \operatorname{arccsch}\left(\frac{1}{t-1}\right)\right)^2}{\sqrt{t^2 - 2t + 2}} dt \right) \right)} \\
& \text{"mean and variance", } 12 \left( \int_1^{-\frac{1}{2}e^{-1} + \frac{1}{2}e + 1} \frac{x \operatorname{arccsch}\left(\frac{1}{x-1}\right) \left(-1 + \operatorname{arccsch}\left(\frac{1}{x-1}\right)\right)^2}{\sqrt{x^2 - 2x + 2}} dx \right. \\
& \quad \left. , 12 \left( \int_1^{-\frac{1}{2}e^{-1} + \frac{1}{2}e + 1} \frac{x^2 \operatorname{arccsch}\left(\frac{1}{x-1}\right) \left(-1 + \operatorname{arccsch}\left(\frac{1}{x-1}\right)\right)^2}{\sqrt{x^2 - 2x + 2}} dx \right)^2 \right. \\
& \quad \left. - 144 \left( \int_1^{-\frac{1}{2}e^{-1} + \frac{1}{2}e + 1} \frac{x \operatorname{arccsch}\left(\frac{1}{x-1}\right) \left(-1 + \operatorname{arccsch}\left(\frac{1}{x-1}\right)\right)^2}{\sqrt{x^2 - 2x + 2}} dx \right)^2 \right) \\
& \text{"MF", } \int_1^{-\frac{1}{2}e^{-1} + \frac{1}{2}e + 1} \frac{12 x^r \operatorname{arccsch}\left(\frac{1}{x-1}\right) \left(-1 + \operatorname{arccsch}\left(\frac{1}{x-1}\right)\right)^2}{\sqrt{x^2 - 2x + 2}} dx \\
& \text{"MGF", } 12 \left( \int_1^{-\frac{1}{2}e^{-1} + \frac{1}{2}e + 1} \frac{e^{tx} \operatorname{arccsch}\left(\frac{1}{x-1}\right) \left(-1 + \operatorname{arccsch}\left(\frac{1}{x-1}\right)\right)^2}{\sqrt{x^2 - 2x + 2}} dx \right)
\end{aligned}$$

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

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

*Resetting high to RV's maximum support value*

*WARNING(PlotDist): Low value provided by user, 0*

*is less than minimum support value of random variable*

1

### *Resetting low to RV's minimum support value*

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

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

### Resetting high to $RV$ 's maximum support value

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

"i is", 20,

—

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

$l := 0$

$$u := \infty$$

$$Temp := \left[ \left[ y \sim \rightarrow -\frac{12 (\operatorname{arctanh}(y \sim) - 1)^2}{\operatorname{arctanh}(y \sim)^5 (y \sim^2 - 1)} \right], \left[ \frac{e - e^{-1}}{e + e^{-1}}, 1 \right], ["Continuous", "PDF"] \right]$$

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

"g(x)",  $\tanh\left(\frac{1}{x}\right)$ , "base",  $12x(1-x)^2$ , "BetaRV(2,3)"

$$"f(x)", - \frac{12 (-1 + \operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)^5 (x^2 - 1)}$$

$$"F(x)" = -\frac{1}{\operatorname{arctanh}\left(\frac{e^2 - 1}{e^2 + 1}\right)^4 \operatorname{arctanh}(x)^4} \left( 6 \operatorname{arctanh}\left(\frac{e^2 - 1}{e^2 + 1}\right)^4 \operatorname{arctanh}(x)^2 \right)$$

$$- 6 \operatorname{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^2 \operatorname{arctanh}(x)^4 - 8 \operatorname{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^4 \operatorname{arctanh}(x)$$

$$+ 8 \operatorname{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right) \operatorname{arctanh}(x)^4 + 3 \operatorname{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^4 - 3 \operatorname{arctanh}(x)^4 \right)$$

"IDF(x)",  $\left[ \left[ \tanh @ \left( s \rightarrow \text{RootOf} \left( \left( \text{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^4 s - 6 \text{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^2 + 8 \text{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right) - 3 \right) - Z^4 + 6 \text{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^4 - Z^2 - 8 \text{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^4 - Z + 3 \text{arctanh} \left( \frac{e^2 - 1}{e^2 + 1} \right)^4 \right) \right) \right], [0, 1], ["Continuous", "IDF"] \right]$

$$\begin{aligned}
& "S(x)", \frac{1}{\operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \operatorname{arctanh}(x)^4} \left( \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \operatorname{arctanh}(x)^4 \right. \\
& \quad \left. - 6 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^2 \operatorname{arctanh}(x)^4 + 6 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \operatorname{arctanh}(x)^2 \right. \\
& \quad \left. + 8 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right) \operatorname{arctanh}(x)^4 - 8 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \operatorname{arctanh}(x) - 3 \operatorname{arctanh}(x)^4 \right. \\
& \quad \left. + 3 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \right) \\
& "h(x)", - \left( 12 (-1 + \operatorname{arctanh}(x))^2 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \right) \Big/ \left( \operatorname{arctanh}(x) (x^2 \right. \\
& \quad \left. - 1) \left( \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \operatorname{arctanh}(x)^4 - 6 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^2 \operatorname{arctanh}(x)^4 \right. \right. \\
& \quad \left. + 6 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \operatorname{arctanh}(x)^2 + 8 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right) \operatorname{arctanh}(x)^4 \right. \\
& \quad \left. - 8 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \operatorname{arctanh}(x) - 3 \operatorname{arctanh}(x)^4 + 3 \operatorname{arctanh}\left(\frac{e^2-1}{e^2+1}\right)^4 \right) \right) \\
& \text{"mean and variance"}, -12 \left( \int_{\frac{e^2-1}{e^2+1}}^1 \frac{x (-1 + \operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)^5 (x^2 - 1)} dx \right), -12 \left( \right. \\
& \quad \left. \int_{\frac{e^2-1}{e^2+1}}^1 \frac{x^2 (-1 + \operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)^5 (x^2 - 1)} dx \right) - 144 \left( \int_{\frac{e^2-1}{e^2+1}}^1 \frac{x (-1 + \operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)^5 (x^2 - 1)} dx \right)^2 \\
& "MF", \int_{\frac{e-e^{-1}}{e+e^{-1}}}^1 \left( - \frac{12 x^{\sim} (-1 + \operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)^5 (x^2 - 1)} \right) dx \\
& "MGF", -12 \left( \int_{\frac{e^2-1}{e^2+1}}^1 \frac{e^{tx} (-1 + \operatorname{arctanh}(x))^2}{\operatorname{arctanh}(x)^5 (x^2 - 1)} dx \right)
\end{aligned}$$

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

$$\frac{e - e^{-1}}{e + e^{-1}}$$

*Resetting low to RV's minimum support value*

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

$$\frac{e - e^{-1}}{e + e^{-1}}$$

*Resetting low to RV's minimum support value*

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

*Resetting high to RV's maximum support value*

```
-12\, , {\frac { \left( -1+{\it arctanh} \left( x \right) \right) ^{2} }{ \left( {\it arctanh} \left( x \right) \right) ^{5} \left( {x}^{2}-1 \right) }}\\
"i is", 21,
"
```

---

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

$$l := 0$$

$$u := \infty$$

$$Temp := \left[ \left[ y \rightarrow \frac{12 (\text{arccsch}(y) - 1)^2}{\text{arccsch}(y)^5 \sqrt{y^2 + 1} |y|} \right], \left[ 0, \frac{2}{e - e^{-1}} \right], ["\text{Continuous}", "PDF"] \right]$$

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

$$\text{"g(x)"}, \text{csch}\left(\frac{1}{x}\right), \text{"base"}, 12 x (1 - x)^2, \text{"BetaRV(2,3)"}$$

$$\text{"f(x)"}, \frac{12 (-1 + \text{arccsch}(x))^2}{\text{arccsch}(x)^5 \sqrt{x^2 + 1} |x|}$$

$$\text{"F(x)"}, 12 \left( \int_0^x \frac{(\text{arccsch}(t) - 1)^2}{\text{arccsch}(t)^5 \sqrt{t^2 + 1} |t|} dt \right)$$

$$\text{"S(x)"}, 1 - 12 \left( \int_0^x \frac{(\text{arccsch}(t) - 1)^2}{\text{arccsch}(t)^5 \sqrt{t^2 + 1} |t|} dt \right)$$

"h(x)", - 
$$\frac{12 (-1 + \operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)^5 \sqrt{x^2 + 1} |x| \left( -1 + 12 \left( \int_0^x \frac{(\operatorname{arccsch}(t) - 1)^2}{\operatorname{arccsch}(t)^5 \sqrt{t^2 + 1} |t|} dt \right) \right)}$$
  
 "mean and variance",  $12 \left( \int_0^{\frac{2e}{e^2 - 1}} \frac{(-1 + \operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)^5 \sqrt{x^2 + 1}} dx \right), 12 \left( \int_0^{\frac{2e}{e^2 - 1}} \frac{x (-1 + \operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)^5 \sqrt{x^2 + 1}} dx \right) - 144 \left( \int_0^{\frac{2e}{e^2 - 1}} \frac{(-1 + \operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)^5 \sqrt{x^2 + 1}} dx \right)^2$ 
  
 "MF",  $\int_0^{\frac{2}{e - e^{-1}}} \frac{12 x^{\sim} (-1 + \operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)^5 \sqrt{x^2 + 1} |x|} dx$ 
  
 "MGF",  $12 \left( \int_0^{\frac{2e}{e^2 - 1}} \frac{e^{tx} (-1 + \operatorname{arccsch}(x))^2}{\operatorname{arccsch}(x)^5 \sqrt{x^2 + 1} x} dx \right)$ 
  

$$12 \left( \frac{\operatorname{arccsch}(x)^2}{\operatorname{arccsch}(x)^5 \sqrt{x^2 + 1}} \right) \left( -1 + 12 \left( \int_0^x \frac{(\operatorname{arccsch}(t) - 1)^2}{\operatorname{arccsch}(t)^5 \sqrt{t^2 + 1} |t|} dt \right) \right)$$
  
 "i is", 22,

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"   
 -----"   

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

$$l := 0$$

$$u := \infty$$

$Temp := [[y \rightarrow -12 \sinh(y) \cosh(y) (-\cosh(y)^2 + 2 \sinh(y))], [0, \ln(1 + \sqrt{2})],$ 
  
 ["Continuous", "PDF"]]

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

"g(x)",  $\operatorname{arccsch} \left( \frac{1}{x} \right)$ , "base",  $12 x (1 - x)^2$ , "BetaRV(2,3)"

"f(x)",  $-12 \sinh(x) \cosh(x) (-\cosh(x)^2 + 2 \sinh(x))$

"F(x)",  $-\sinh(x)^2 (-3 \cosh(x)^2 + 8 \sinh(x) - 3)$

"IDF(x)",  $[\ln @ (s \rightarrow \operatorname{RootOf}(3 + 3 Z^8 - 16 Z^7 + 12 Z^6 + 48 Z^5 + (-16 s - 30) Z^4, Z))]$

```

- 48 Z3 + 12 Z2 + 16 Z ) ) ], [0, 1], ["Continuous", "IDF"] ]
    "S(x)", -3 cosh(x)4 + 8 cosh(x)2 sinh(x) - 8 sinh(x) + 4
    "h(x)", 
$$\frac{12 \cosh(x) \sinh(x)}{-3 \cosh(x)^2 + 2 \sinh(x) + 4}$$

"mean and variance", 
$$\frac{1}{24} \frac{828 \sqrt{2} \ln(1 + \sqrt{2}) - 623 \sqrt{2} + 1173 \ln(1 + \sqrt{2}) - 872}{17 + 12 \sqrt{2}},$$

- 
$$\frac{1}{576} \frac{1}{(17 + 12 \sqrt{2})^2} (1791585 \ln(1 + \sqrt{2})^2 + 865248 \ln(1 + \sqrt{2})$$

+ 1266840  $\sqrt{2} \ln(1 + \sqrt{2})^2 - 2165390 + 611802 \sqrt{2} \ln(1 + \sqrt{2}) - 1531216 \sqrt{2})$ 
"MF", 
$$\int_0^{\ln(1 + \sqrt{2})} (-12 x^r \sinh(x) \cosh(x) (-\cosh(x)^2 + 2 \sinh(x))) dx$$

"MGF", 
$$(12 (-1530 + 4352 t + 68 t^5 + 17 t^6 - 1080 \sqrt{2} + 2346 (1 + \sqrt{2})^t + 68 t^5 (1 + \sqrt{2})^t \sqrt{2} - 576 t^4 (1 + \sqrt{2})^t \sqrt{2} + 1190 t^3 (1 + \sqrt{2})^t \sqrt{2} + 1080 t^2 (1 + \sqrt{2})^t \sqrt{2} - 4318 t (1 + \sqrt{2})^t \sqrt{2} + 48 \sqrt{2} t^5 - 240 \sqrt{2} t^4 + 12 \sqrt{2} t^6 - 960 \sqrt{2} t^3 + 1308 \sqrt{2} t^2 + 3072 \sqrt{2} t - 340 t^4 - 1360 t^3 + 1853 t^2 + 1656 (1 + \sqrt{2})^t \sqrt{2} + 96 t^5 (1 + \sqrt{2})^t - 816 t^4 (1 + \sqrt{2})^t + 1680 t^3 (1 + \sqrt{2})^t + 1530 t^2 (1 + \sqrt{2})^t - 6096 t (1 + \sqrt{2})^t)) / (17 t^8 + 12 \sqrt{2} t^8 - 510 t^6 - 360 \sqrt{2} t^6 + 4641 t^4 + 3276 \sqrt{2} t^4 - 13940 t^2 - 9840 \sqrt{2} t^2 + 9792 + 6912 \sqrt{2})$$

    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
-12\, \sinh \left( x \right) \cosh \left( x \right) \left( -\left( \cosh \left( x \right) \right) ^2+2\, \sinh \left( x \right) \right)

```