```
DD2[n_, k_] := DD2[n, k] = Sum[ DD2[Floor[n / j], k - 1], {j, 2, n}]; DD2[n_, 0] := 1
DDD[n_, z_] := Sum[FactorialPower[z, a] / a! DD2[n, a], {a, 0, Log[2, n]}]
K[n_] := If[n == 1, 0, FullSimplify[MangoldtLambda[n] / Log[n]]]
P[n_, k_] := Sum[ K[j] P[Floor[n / j], k - 1], {j, 2, n}]; P[n_, 0] := 1
```

```
da[n_, z_] := Product[Pochhammer[z, a = p[[2]]] / a!, {p, FI[n]}];
FI[n_] := FactorInteger[n]; FI[1] := {}
daa[z_] := da[8, z]
Expand[daa'[z]]
```

$$\frac{1}{3} + z + \frac{z^2}{2}$$

```
Table[ P[100, k] / (k - 1)!, {k, 1, 7}]
```

$$\left\{\frac{428}{15}, \frac{16\,289}{180}, \frac{993}{16}, \frac{611}{36}, \frac{67}{48}, \frac{7}{120}, 0\right\}$$

```
faa[z_] := DDDa[100, z]
faa'[z]
Expand[FullSimplify[faa'[z]]]
```

$$\text{DDDa}^{(0,1)}[100, z]$$

$$\text{DDDa}^{(0,1)}[100, z]$$

```
d2d[ n_, z_] := Sum[ 1 / (k!) DD2[n, k] FactorialPower[z, k]
    (-PolyGamma[0, (-k + 1) + z] + PolyGamma[0, 1 + z]), {k, 1, Log[2, n]}]
d2e[ n_, z_] := Sum[ 1 / (k!) DD2a[n, k] FactorialPower[z, k]
    (-PolyGamma[0, (-k + 1) + z] + PolyGamma[0, 1 + z]), {k, 1, Log[2, n]}]
```

```
d2e[100, 2]
```

Infinity::indet : Indeterminate expression 0 DD2a[100, 3] ComplexInfinity encountered. ≫

Infinity::indet : Indeterminate expression 0 DD2a[100, 4] ComplexInfinity encountered. ≫

Infinity::indet : Indeterminate expression 0 DD2a[100, 5] ComplexInfinity encountered. ≫

General::stop : Further output of Infinity::indet will be suppressed during this calculation. ≫

Indeterminate

```
fa[z_] := DDD[100, z]
Expand[FullSimplify[fa'[z]]]
```

$$\frac{428}{15}+\frac{16\,289\,z}{180}+\frac{993\,z^2}{16}+\frac{611\,z^3}{36}+\frac{67\,z^4}{48}+\frac{7\,z^5}{120}$$

```
D[DDD[100, z], z]
```

$$99+\frac{7}{720}\,\text{FactorialPower}[z, 6]\,(-\text{PolyGamma}[0, -5+z]+\text{PolyGamma}[0, 1+z])+\frac{17}{40}\,\text{FactorialPower}[z, 5]\,(-\text{PolyGamma}[0, -4+z]+\text{PolyGamma}[0, 1+z])+\frac{23}{3}\,\text{FactorialPower}[z, 4]\,(-\text{PolyGamma}[0, -3+z]+\text{PolyGamma}[0, 1+z])+54\,\text{FactorialPower}[z, 3]\,(-\text{PolyGamma}[0, -2+z]+\text{PolyGamma}[0, 1+z])+\frac{283}{2}\,\text{FactorialPower}[z, 2]\,(-\text{PolyGamma}[0, -1+z]+\text{PolyGamma}[0, 1+z])$$

```
FullSimplify[D[DDD[100, z], z]] /. z → 0
```

$$\frac{428}{15}$$

```
Expand[FullSimplify[fa[z]]]
```

$$1+99\,z+\frac{283}{2}\,\text{FactorialPower}[z, 2]+54\,\text{FactorialPower}[z, 3]+\frac{23}{3}\,\text{FactorialPower}[z, 4]+\frac{17}{40}\,\text{FactorialPower}[z, 5]+\frac{7}{720}\,\text{FactorialPower}[z, 6]$$

```
Expand[FullSimplify[fa[b]]]
```

$$1+99\,b+\frac{283}{2}\,\text{FactorialPower}[b, 2]+54\,\text{FactorialPower}[b, 3]+\frac{23}{3}\,\text{FactorialPower}[b, 4]+\frac{17}{40}\,\text{FactorialPower}[b, 5]+\frac{7}{720}\,\text{FactorialPower}[b, 6]$$

```
fc[z_] := 428/15 + 16 289 z/180 + 993 z^2/16 + 611 z^3/36 + 67 z^4/48 + 7 z^5/120
1 + Integrate[fc[z], {z, 0, -3}]
```

47

```
DDD[100, -3]
```

47

```
fc[0]
```

$$\frac{428}{15}$$

```
1 + Integrate[ fc[z], {z, 0, 3}]
```

1471

```
DDD[100, 3]
```

1471

```
1 + Integrate[ fc[z], {z, 0, 1 - 3 I}]
```

$$-\frac{5279}{8} + \frac{3335\,i}{8}$$

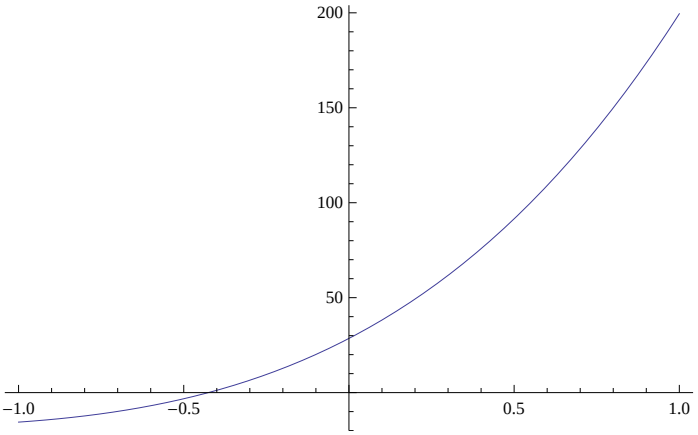
```
DDD[100, 1 - 3 I]
```

$$-\frac{5279}{8} + \frac{3335\,i}{8}$$

```
Integrate[ fc[z], {z, 1, 2}]
```

382

```
Plot[ {fc[z]}, {z, -1, 1}]
```




```
c1 := CoefficientList[Series[Log[1 + x], {x, 0, 20}], x]
c2 := CoefficientList[Series[Log[1 + x]^2, {x, 0, 20}], x]
c3 := CoefficientList[Series[Log[1 + x]^3, {x, 0, 20}], x]
c4 := CoefficientList[Series[Log[1 + x]^4, {x, 0, 20}], x]
c5 := CoefficientList[Series[Log[1 + x]^5, {x, 0, 20}], x]
c6 := CoefficientList[Series[Log[1 + x]^6, {x, 0, 20}], x]
c7 := CoefficientList[Series[Log[1 + x]^7, {x, 0, 20}], x]
ca := { c1, c2, c3, c4, c5, c6, c7}
```

$$\frac{428}{15}+\frac{16\,289\,z}{180}+\frac{993\,z^2}{16}+\frac{611\,z^3}{36}+\frac{67\,z^4}{48}+\frac{7\,z^5}{120}$$

```
Sum[ ca[[1]][[k + 1]] DD2[100, k], {k, 1, 7}]
```

$$\frac{428}{15}$$

```
Sum[ Sum[ ca[[j]][[k + 1]] DD2[100, k] / ((j - 1) !) z^(j - 1), {k, 1, 7}], {j, 1, 7}]
```

$$\frac{428}{15}+\frac{16\,289\,z}{180}+\frac{993\,z^2}{16}+\frac{611\,z^3}{36}+\frac{67\,z^4}{48}+\frac{7\,z^5}{120}$$

```
Sum[ DD2a[100, k] Sum[ ca[[j]][[k + 1]] / ((j - 1) !) z^(j - 1), {j, 1, 7}], {k, 1, 7}]
```

$$\text{DD2a}[100,\,1]+\left(-\frac{1}{2}+z\right)\text{DD2a}[100,\,2]+\left(\frac{1}{3}-z+\frac{z^2}{2}\right)\text{DD2a}[100,\,3]+\left(-\frac{1}{4}+\frac{11\,z}{12}-\frac{3\,z^2}{4}+\frac{z^3}{6}\right)\text{DD2a}[100,\,4]+\left(\frac{1}{5}-\frac{5\,z}{6}+\frac{7\,z^2}{8}-\frac{z^3}{3}+\frac{z^4}{24}\right)\text{DD2a}[100,\,5]+\left(-\frac{1}{6}+\frac{137\,z}{180}-\frac{15\,z^2}{16}+\frac{17\,z^3}{36}-\frac{5\,z^4}{48}+\frac{z^5}{120}\right)\text{DD2a}[100,\,6]+\left(\frac{1}{7}-\frac{7\,z}{10}+\frac{29\,z^2}{30}-\frac{7\,z^3}{12}+\frac{25\,z^4}{144}-\frac{z^5}{40}+\frac{z^6}{720}\right)\text{DD2a}[100,\,7]$$

```
dif[k_] := (DDD[ 100, k ] - DDD[ 100, -k ]) / (2 k)

dif[.0001]
```

28.5333

```
D2[n_, k_, s_] := Sum[j^-s D2[Floor[n / j], k - 1, s], {j, 2, n}]; D2[n_, 0, s_] := 1
DD[n_, z_, s_] := Sum[FactorialPower[z, a] / a ! D2[n, a, s], {a, 0, Log[2, n]}]
dif[k_, s_] := (DD[ 100, k, s ] - DD[ 100, -k, s ]) / (2 k)

N[dif[.0001, -1]]
```

1156.48

```
(DD[100, .0001, -1] - 1) / .0001
```

1156.72

```
fs[s_] := x^s

fs'[s]
```

$x^s \text{Log}[x]$

```
fo[s_] := (1 - Gamma[s, -Log[100]] / Gamma[s])
```

```
Limit[fo'[s], s → 0]
```

$$\text{Limit}\left[-\frac{1}{\text{Gamma}[s]}\left(\text{Gamma}[s, -\text{Log}[100]]\,(i\,\pi+\text{Log}[\text{Log}[100]])+\text{MeijerG}[\{\{\},\{1,1\}\},\{\{0,0,s\},\{\}\},-\text{Log}[100]]\right)+\frac{\text{Gamma}[s,-\text{Log}[100]]\,\text{PolyGamma}[0,s]}{\text{Gamma}[s]},\ s\to 0\right]$$

```
D2[n_, k_, s_] := D2[n, k, s] = Sum[j^-s D2[Floor[n / j], k - 1, s], {j, 2, n}];
D2[n_, 0, s_] := 1
DD[n_, z_, s_] := Sum[FactorialPower[z, a] / a! D2[n, a, s], {a, 0, Log[2, n]}]


g1[s_] := DD[10, z, s]
g1a[s_] := DD[100, z, s]

g1[0]
```

$$1 + 99\,z + \frac{283}{2}\,\text{FactorialPower}[z, 2] + 54\,\text{FactorialPower}[z, 3] + \frac{23}{3}\,\text{FactorialPower}[z, 4] + \frac{17}{40}\,\text{FactorialPower}[z, 5] + \frac{7}{720}\,\text{FactorialPower}[z, 6]$$

```
Integrate[ g1a'[s], {s, 0, Infinity}]
```

```
$Aborted


gg[zz_, s_] := g1'[s] /. z → zz
gga[zz_, s_] := g1a'[s] /. z → zz

g2[s_] := D2[10, 1, s]

Expand[g2'[s]]
```

$$-2^{-s}\,\text{Log}[2] - 3^{-s}\,\text{Log}[3] - 4^{-s}\,\text{Log}[4] - 5^{-s}\,\text{Log}[5] - 6^{-s}\,\text{Log}[6] - 7^{-s}\,\text{Log}[7] - 8^{-s}\,\text{Log}[8] - 9^{-s}\,\text{Log}[9] - 10^{-s}\,\text{Log}[10]$$

```
Integrate[ gg[1, s], {s, 0, -1}]
```

```
45

DD[10, 2, 0] + Integrate[ gg[2, s], {s, 0, -1}]
```

```
170

DD[10, 2, -1]
```

```
170

DD[10, 3, 0] + Integrate[ gg[3, s], {s, 0, -2}]
```

```
2708

DD[10, 3, -2]
```

```
2708

DD[10, 3, 3] + Integrate[ gg[3, s], {s, 3, -2}]
```

```
2708

1 - Integrate[ gg[3, s], {s, -2, Infinity}]
```

```
2708
```

```
(DD[10, .00000001, 0] + Integrate[ gg[.00000001, s], {s, 0, -2}] - 1) / .00000001
```

156.833

```
(DD[10, .00000001, -2] - 1) / .00000001
```

156.833

```
(-Integrate[ gg[.00000001, s], {s, -2, Infinity}]) / .00000001
```

156.833

```
(DD[10, .0000001, -2] - Integrate[ gg[.0000001, s], {s, 0, -2}] - 1) / .0000001
```

5.33333

```
(-Integrate[ gg[.00000001, s], {s, 0, Infinity}]) / .00000001
```

5.33333

```
(DD[10, .0000001, 0] - 1) / .0000001
```

5.33333

```
DD[10, .0000001, -2]
```

1.00002

```
Integrate[ gg[.0000001, s], {s, 0, -2}]
```

0.00001515

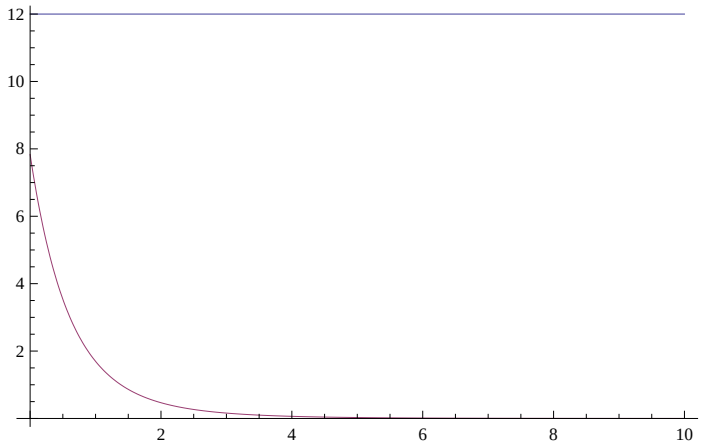
```
(-Integrate[ gga[.00000001, s], {s, 0, Infinity}]) / .00000001
```

$Aborted

```
(Integrate[- gg[.00000001, s] / .00000001, {s, 0, Infinity}])
```

5.33333

```
Plot[{12, -gg[.000000001, s] / .000000001}, {s, 0, 10}]
```




```
-gga[.0000000001, 0] / .0000000001
```

94.0453

```
N[Sum[ MangoldtLambda[ j], {j, 2, 100}]]
```

94.0453

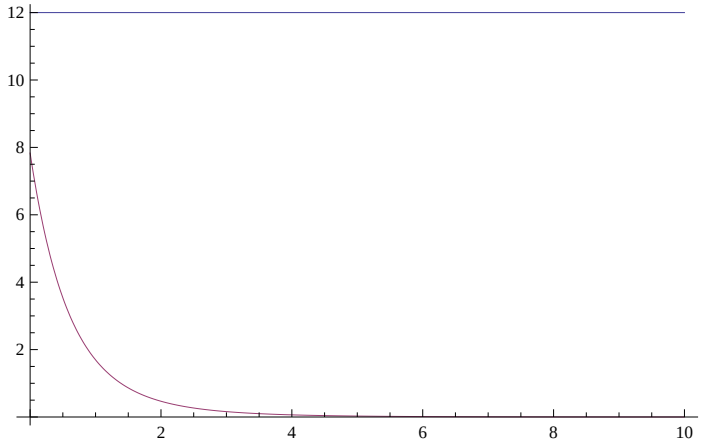
```
N[Limit[-gga[s, 0] / s, {s → 0}]]
```

```
{94.0453}
```

```
-gga[1., 0]
```

```
363.739
```

```
Plot[{12, -gg[.000001, s] / .000001}, {s, 0, 10}]
```




```
Limit[-gg[k, s] / k, {k → 0}]
```

$$\left\{4^{-s}\,(-1+2^{s})\,\text{Log}[2]+9^{-s}\,(-1+3^{s})\,\text{Log}[3]+2^{-1-3\,s}\,\text{Log}[4]+4^{-s}\,\text{Log}[4]+5^{-s}\,\text{Log}[5]+7^{-s}\,\text{Log}[7]+9^{-s}\,\text{Log}[9]\right\}$$

```
ga[s_] := 4^-s (-1 + 2^s) Log[2] + 9^-s (-1 + 3^s) Log[3] +
  2^-1-3 s Log[4] + 4^-s Log[4] + 5^-s Log[5] + 7^-s Log[7] + 9^-s Log[9]
```

```
Integrate[ ga[s], {s, 0, Infinity}]
```

$$\frac{16}{3}$$

```
Integrate[ ga[s], {s, 0, I Infinity}]
```

$$\int_0^{i\,\infty}\left(4^{-s}\,(-1+2^{s})\,\text{Log}[2]+9^{-s}\,(-1+3^{s})\,\text{Log}[3]+2^{-1-3\,s}\,\text{Log}[4]+4^{-s}\,\text{Log}[4]+5^{-s}\,\text{Log}[5]+7^{-s}\,\text{Log}[7]+9^{-s}\,\text{Log}[9]\right)\,ds$$

```
Sum[Log[2] / 2^s, {s, 0, Infinity}]
```

$$2\,\text{Log}[2]$$

```
Integrate[Log[2] / 2^s, {s, 0, Infinity}]
```

```
1
```

```
Integrate[ ga[s], {s, 0, 1}]
```

$$\frac{2479}{630}$$

```
(DD[10, .0000001, 1] - 1) / .0000001
```

```
1.39841
```

```
D[x^n, x]
```

$$n\, x^{-1+n}$$

```
D[x^n, n]
```

$$x^n \operatorname{Log}[x]$$

```
D[DD[10, z, s], s]
```

$$-2^{-1-3 s}\, \text{FactorialPower}[z, 3] \operatorname{Log}[2] + \frac{1}{2}\, \text{FactorialPower}[z, 2]$$
$$(-2^{-s}\, (2^{-s} + 3^{-s} + 4^{-s} + 5^{-s}) \operatorname{Log}[2] - 3^{-s}\, (2^{-s} + 3^{-s}) \operatorname{Log}[3] + 3^{-s}\, (-2^{-s} \operatorname{Log}[2] - 3^{-s} \operatorname{Log}[3]) +$$
$$2^{-s}\, (-2^{-s} \operatorname{Log}[2] - 3^{-s} \operatorname{Log}[3] - 4^{-s} \operatorname{Log}[4] - 5^{-s} \operatorname{Log}[5]) - 8^{-s} \operatorname{Log}[8] - 10^{-s} \operatorname{Log}[10]) +$$
$$z\, (-2^{-s} \operatorname{Log}[2] - 3^{-s} \operatorname{Log}[3] - 4^{-s} \operatorname{Log}[4] - 5^{-s} \operatorname{Log}[5] - 6^{-s} \operatorname{Log}[6] -$$
$$7^{-s} \operatorname{Log}[7] - 8^{-s} \operatorname{Log}[8] - 9^{-s} \operatorname{Log}[9] - 10^{-s} \operatorname{Log}[10])$$

```
Integrate[-D[ DD[10, .00000001, s], s] / .00000001, {s, 0, Infinity}]
```

5.33333

```
1 - Integrate[D[ DD[10, 2, s], s], {s, -1, Infinity}]
```

170

```
DD[10, 2, -1]
```

170

```
Limit[ -z^-1 Integrate[D[ DD[10, z, s], s], {s, 0, Infinity}], {z → 0}]
```

$$\left\{\frac{16}{3}\right\}$$

```
Limit[( DD[10, z, 0] - 1) / z, {z → 0}]
```

$$\left\{\frac{16}{3}\right\}$$

```
FullSimplify[Limit[ Integrate[-D[ DD[10, z, s], s] / z, {s, -1, Infinity}], {z → 0}]]
```

$$\left\{\frac{157}{6}\right\}$$

```
FullSimplify[Limit[ Integrate[-D[ DD[10, z, s], s] / z, {s, 1, Infinity}], {z → 0}]]
```

$$\left\{\frac{881}{630}\right\}$$

```
Limit[( DD[10, z, 1] - 1) / z, {z → 0}]
```

$$\left\{\frac{881}{630}\right\}$$

```
1 + 1
```

```
-gga[.0000000001, 0] / .0000000001
```

94.0453

```
L2[n_, k_] := Sum[L2[Floor[n / j], k - 1], {j, 2, n}]; L2[n_, 1] := Sum[Log[j], {j, 2, n}]
L2toL1x[n_, z_] := Sum[Binomial[z - 1, a] L2[n, a + 1], {a, 0, Log[2, n]}]
```

```
N[Limit[D[(-DD[100, z, s] - 1) / z, s] /. s → 0, z → 0]]
```

```
94.0453
```

```
Limit[(DD[100, z, 0] - 1) / z, z → 0]
```

$$\frac{428}{15}$$

```
FullSimplify[D[DD[100, z, 0], z]] /. z → 0
```

$$\frac{428}{15}$$

```
N[D[-DD[100, -.5 I, s] / -.5 I, s] /. s → 0]
```

```
-73.7152 + 82.3658 i
```

```
N[L2toL1x[100, -.5 I]]
```

```
73.7152 - 82.3658 i
```

```
N[D[-DD[100, 1, s] / 1, s] /. s → 0]
```

```
363.739
```

```
N[L2toL1x[100, 1]]
```

```
363.739
```

```
N[L2toL1x[100, 2]]
```

```
920.841
```

```
N[D[-DD[100, 2, s] / 2, s] /. s → 0]
```

```
920.841
```

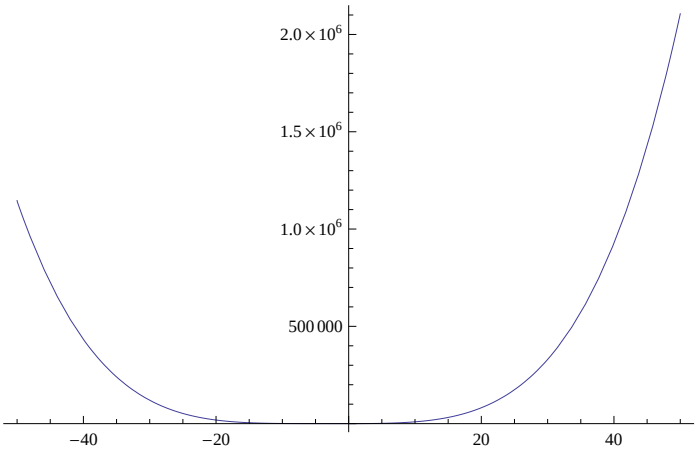
```
FullSimplify[D[DD[100, z, 0], z]] /. z → 0
```

$$\frac{428}{15}$$

```
N[Integrate[D[-DD[100, k, s] / k, s] /. s → 0, {k, 0, 1}]]
```

```
210.494
```

```
Plot[D[DD[50, z, 0], z] /. z → z2, {z2, -50, 50}]
```




```
D[DD[50, z, 0], z]
```

```
ss[z_] := 49 + 1/20 FactorialPower[z, 5] (-PolyGamma[0, -4 + z] + PolyGamma[0, 1 + z]) +
  35/24 FactorialPower[z, 4] (-PolyGamma[0, -3 + z] + PolyGamma[0, 1 + z]) +
  46/3 FactorialPower[z, 3] (-PolyGamma[0, -2 + z] + PolyGamma[0, 1 + z]) +
  54 FactorialPower[z, 2] (-PolyGamma[0, -1 + z] + PolyGamma[0, 1 + z])
```

```
Expand[FullSimplify[D[DD[100, z, 0], z]]]
```

$$\frac{428}{15} + \frac{16\,289\,z}{180} + \frac{993\,z^2}{16} + \frac{611\,z^3}{36} + \frac{67\,z^4}{48} + \frac{7\,z^5}{120}$$

```
Integrate[-D[DO[n, z, t] / z, z], {t, b, c}]
```

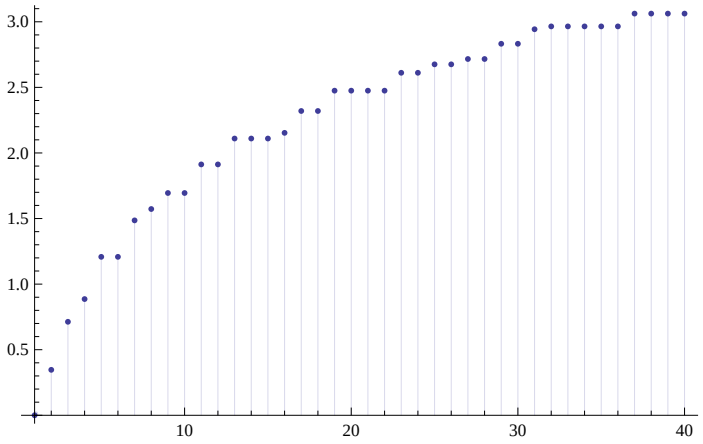
$$\int_b^c \left(\frac{DO[n, z, t]}{z^2} - \frac{DO^{(0,1,0)}[n, z, t]}{z} \right) dt$$

```
D2[n_, k_, s_] := D2[n, k, s] = Sum[j^-s D2[Floor[n / j], k - 1, s], {j, 2, n}];
D2[n_, 0, s_] := 1
DD[n_, z_, s_] := Sum[FactorialPower[z, a] / a! D2[n, a, s], {a, 0, Log[2, n]}]
```

```
N[Limit[ D[ (-DD[100, z, s] - 1) / z, s] /. s → 0, z → 0]]
```

```
94.0453
```

```
DiscretePlot[ Limit[ D[ (-DD[n, z, s] - 1) / z, s] /. s → 1, z → 0], {n, 1, 40}]
```




```
FullSimplify[
 Limit[ D[ (-DD[30, z, s] - 1) / z, s], z → 0] - Limit[ D[ (-DD[29, z, s] - 1) / z, s], z → 0]]
```

```
0
```

```
FullSimplify[
 Limit[ D[ (-DD[31, z, s] - 1) / z, s], z → 0] - Limit[ D[ (-DD[30, z, s] - 1) / z, s], z → 0]]
```

$$31^{-s} \text{Log}[31]$$

```
31 × 31 × 31
```

```
29 791
```

```
FullSimplify[
 Sum[ MangoldtLambda[ j ] / Log[j] Integrate[ Log[j] j^-s, {s, 0, Infinity}], {j, 2, 100}]]
```

$$\frac{428}{15}$$

```
FullSimplify[
 Limit[ D[ (-DD[31, z, s] - 1) / z, s], z → 1] - Limit[ D[ (-DD[30, z, s] - 1) / z, s], z → 1]]
```

$$31^{-s} \text{Log}[31]$$

```
Table[ FullSimplify[D[DD[100, z, 0], {z, s}]] /. z → 0, {s, 0, 4}]
```

$$\left\{1, \frac{428}{15}, \frac{16\,289}{180}, \frac{993}{8}, \frac{611}{6}\right\}$$

```
Table[ P[100, k], {k, 0, 7}]
```

$$\left\{1, \frac{428}{15}, \frac{16\,289}{180}, \frac{993}{8}, \frac{611}{6}, \frac{67}{2}, 7, 0\right\}$$

```
Table[Limit[FullSimplify[D[(DD[100, z, 0] - 1) / z, {z, s}]], z → 0], {s, 0, 3}]
```

$$\left\{\frac{428}{15}, \frac{16\,289}{360}, \frac{331}{8}, \frac{611}{24}\right\}$$

```
Table[ P[100, k] / k, {k, 1, 7}]
```

$$\left\{\frac{428}{15}, \frac{16\,289}{360}, \frac{331}{8}, \frac{611}{24}, \frac{67}{10}, \frac{7}{6}, 0\right\}$$

```
N[Limit[ D[ (DD[100, z, s] - 1) / z, {s, 0}] /. s → 0, z → 0]]
```

```
28.5333
```

```
N[Sum[ Log[j]^0 K[j], {j, 2, 100}]]
```

```
28.5333
```

```
N[Limit[ D[ (DD[100, z, s] - 1) / z, {s, 1}] /. s → 0, z → 0]]
```

```
-94.0453
```

```
N[Sum[ (-1)^(1) Log[j] K[j], {j, 2, 100}]]
```

```
-94.0453
```

```
N[Limit[ D[ (DD[100, z, s] - 1) / z, {s, 2}] /. s → 0, z → 0]]
```

```
342.318
```

```
N[Sum[(-1)^(2) Log[j]^2 K[j], {j, 2, 100}]]
```

```
342.318
```

```
N[Limit[ D[ (DD[100, z, s] - 1) / z, {s, 3}] /. s → 0, z → 0]]
```

```
-1311.28
```

```
N[Sum[ (-1)^(3) Log[j]^3 K[j], {j, 2, 100}]]
```

```
-1311.28
```

```
N[Limit[ D[ (DD[100, z, s] - 1) / z, {s, 4}] /. s → 0, z → 0]]
```

```
5178.95
```

```
N[Sum[ (-1)^4 Log[j]^4 K[j], {j, 2, 100}]]
```

```
5178.95
```

```
N[Limit[ D[ (DD[100, z, s]), {z, 1}] /. s → 0, z → 0]]
```

```
28.5333
```

```
tt[n_, k_] := Sum[ (-1)^(k) Log[j]^k K[j] / k!, {j, 2, 100}]
```

```
lx[n_, x_] := tt[n, 0] + Sum[ tt[n, j] x^j, {j, 1, 30}]
```

```
N[lx[100, -1]]
```

```
1156.48
```

```
N[Limit[ (DD[100, z, -1] - 1) / z, z → 0]]
```

```
1156.48
```