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


f[t_] := FullSimplify[(DDa[100, t])]
f2[s_] := Integrate[ FullSimplify[E^(-s t) f[t]], {t, 0, Infinity}]

Expand[f2[s]]
```

$$\text{ConditionalExpression}\left[\frac{7}{s^7}+\frac{67}{2\,s^6}+\frac{611}{6\,s^5}+\frac{993}{8\,s^4}+\frac{16\,289}{180\,s^3}+\frac{428}{15\,s^2}+\frac{1}{s},\ \text{Re}[s]>0\right]$$

```
f3[s_] := 7/s^7 + 67/(2 s^6) + 611/(6 s^5) + 993/(8 s^4) + 16289/(180 s^3) + 428/(15 s^2) + 1/s

N[Roots[ f3[x] == 0, x]]
```

```
x == -25.1214 || x == -1.78282 || x == -0.616185 - 0.940804 i ||
  x == -0.616185 + 0.940804 i || x == -0.198375 - 0.290209 i || x == -0.198375 + 0.290209 i
```

```
Expand[f[t]]
```

$$1+\frac{428\,t}{15}+\frac{16\,289\,t^2}{360}+\frac{331\,t^3}{16}+\frac{611\,t^4}{144}+\frac{67\,t^5}{240}+\frac{7\,t^6}{720}$$

```
f4[ t_, g_ ] := 1 / (2 Pi I ) Limit[ Integrate[E^(s t) f3[s], {s, g - I T, g + I T}], T -> Infinity]

Limit[ (f4[z, 1] - 1) / z, z -> 0]

$Aborted
```