```
d2[n_, k_] := Sum[d2[j, k - 1] d2[n / j, 1], {j, Divisors[n]}];
d2[n_, 1] := 1; d2[1, 1] := 0; d2[n_, 0] := 0; d2[1, 0] := 1
dd[n_, z_] := Sum[FactorialPower[z, a] / a! d2[n, a], {a, 0, Log[2, n]}]
MM[n_, k_, s_] := Sum[ dd[j, s] MM[Floor[n / j], k - 1, s], {j, 2, n}]; MM[n_, 0, s_] := 1
bins[ z_, a_] := Product[ (z - k), {k, 0, a - 1}] / a!
DD[n_, z_, s_] := Sum[ FullSimplify[bins[z / s, k]] MM[n, k, s], {k, 0, Log[2, n]}]
```

```
Expand[DD[100, z, 2]]
```

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

```
N[MM[100, 2]]
```

9.05069×10^{-7}

```
DD[100, 2, 2]
```

482

```
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


N[P[100, 2]]
```

90.4944

```
FullSimplify[D[DD[100, 2, z], z]]
```

0