```
ClearAll["Global`*"]
K[n_] := If[n == 1, 0, FullSimplify[MangoldtLambda[n] / Log[n]]]
bins[z_{-}, a_{-}] := Product[(z-k), \{k, 0, a-1\}] / a!
d[f_{-}, n_{-}, k_{-}] := d[f, n, k] = Sum[d[f, j, k-1]d[f, n/j, 1], {j, Divisors[n]}];
d[f_{-}, n_{-}, 1] := f[n]; d[f_{-}, n_{-}, 0] := 0; d[f_{-}, 1, 0] := 1
d2[f_{-}, n_{-}, k_{-}] := d2[f, n, k] = Sum[(-1)^{(k-j)} Binomial[k, j] d[f, n, j], \{j, 0, k\}]
dz[f_{-}, n_{-}, z_{-}] := dz[f, n, z] = Sum[bins[z, k] d2[f, n, k], \{k, 0, Log[2, n]\}]
Dz[f_{n}, n_{j}] := Dz[f_{n}, n_{j}] = Sum[dz[f_{j}, j_{j}], \{j, 1, n\}]
Dh[f_{-}, n_{-}, k_{-}, a_{-}] := Sum[f[m]^{(k-j)} Binomial[k, j] Dh[f_{-}, Floor[n/m^{(k-j)}], j, m+1],
   {m, a, n^{(1/k)}, {j, 0, k-1}};
Dh[f_, n_, 0, a_] := 1
zeros[f_{n}, n] := List@@NRoots[Dz[f, n, z] == 0, z][[All, 2]]
DzAlt[f_{-}, n_{-}, z_{-}] := Product[1-z/r, \{r, zeros[f, n]\}]
Linnik[f_{n}] := Linnik[f, n] = Sum[(-1)^(k+1)/kd2[f, n, k], \{k, 1, Log[2, n]\}]
RecurseLinnik[f_, n_, k_] :=
f[n]/k - Sum[If[j = 1 | | n = j, 0, f[n/j] RecurseLinnik[f, j, k+1]], {j, Divisors[n]}]
t[n_{j}] := Mod[n, j] - Mod[n-1, j]
Ident[n_] := 1
IdentAlt[n_] := (-1)^{(n+1)}
Ident3[n_] := t[n, 3]
Identn[n_] := n
MuSquared[n_] := MoebiusMu[n]^2
Divisor1[n_] := DivisorSigma[1, n]
PrimeExp[n_, z_] := Product[z^p[[2]] / (p[[2]]!), {p, FI[n]}];
FI[n_] := FactorInteger[n]; FI[1] := {}
PrimeExp1[n_] := PrimeExp[n, 1]
funcs := { Identn, Ident, IdentAlt, Ident3, MoebiusMu,
  LiouvilleLambda, MuSquared, Divisor1, EulerPhi, PrimeExpl}
```

	-	_	-	-	-	-	-	-	
2	1	- 1	1	- 1	- 1	1	3	1	1
3	1	1	- 2	- 1	- 1	1	4	2	1
2	$\frac{1}{2}$	$-\frac{3}{2}$	$\frac{1}{2}$	-1 -1 $-\frac{1}{2}$ -1	$\frac{1}{2}$	$-\frac{1}{2}$	<u>5</u> 2	$\frac{3}{2}$	0
5	1	1	1	– 1	- 1	1	6	4	1
0	0	0	0	0	Ο	0	0	0	0
7	1	1	1	- 1	-1	1	8	6	1
		$-\frac{7}{3}$	$\frac{1}{3}$ - 4	$ \begin{array}{c} -1 \\ -\frac{1}{3} \\ -\frac{1}{2} \end{array} $	-1 $-\frac{1}{3}$	1	3	$\frac{7}{3}$	0
8 3 9 2	$\frac{1}{3}$ $\frac{1}{2}$	3	3	3	$-\frac{1}{3}$ $\frac{1}{2}$	$\frac{1}{3} - \frac{1}{2}$			
2	<u>+</u> 2	$\frac{1}{2}$	- 4	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	5	4	0
0	0	0	0	0	U	0	0	0	0
11	1	1	1	- 1	-1	1	12	10	1
0	0	0	0	0	0	0	0	0	0
13	1	1	1	- 1	- 1	1	14	12	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
4	$\frac{1}{4}$	$-\frac{15}{4}$	$\frac{1}{4}$	$-\frac{1}{4}$	$\frac{1}{4}$	$-\frac{1}{4}$	$\frac{17}{4}$	$\frac{15}{4}$	0
17	1	1	1	- 1	- 1	1	18	16	1
0	0	0	0	0	0	0	0	0	0
19	1	1	1	- 1	- 1	1	20	18	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
23	1	1	1	- 1	-1	1	24	22	1
0	0	0	0	0	0	0	0	0	0
25 2	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	13	12	0
0	0	0	0	0	0	0	0	0	0
9	$\frac{1}{3}$	$\frac{1}{3}$	$-\frac{26}{3}$	$-\frac{1}{3}$	$-\frac{1}{3}$	$\frac{1}{3}$	<u>28</u> 3	26	0
0	3 0	3 0	0	0	0	3	3 0	 0	0
29	1	1	1	- 1	- 1	1	30	28	1
0	0	0	0	0	0	0	0	0	0
31	1	1	1	- 1	- 1	1	32	30	1
32				$-\frac{1}{5}$				31	0
5	<u>1</u> 5	$-\frac{31}{5}$	<u>1</u> 5		$-\frac{1}{5}$	<u>1</u> 5	33	5	
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0 37	0	0	0	0 - 1	0 - 1	0	0 38	0	0 1
	1 0	1 0	1 0			1		36	
0	0	0	0	0 0	0	0 0	0 0	0 0	0 0
0	0	0	0	0	0	0	0	0	0

 $\label{eq:continuous_continuous$

2	1	-1	1	-1 -1 $-\frac{1}{2}$	- 1	1	3	1	1
3	1	1	- 2	- 1	-1 $\frac{1}{2}$	1	4	2	1
2	$\frac{1}{2}$	$-\frac{3}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	<u>5</u> 2	$\frac{3}{2}$	0
5	1	1	1	- 1	- 1	1	6	4	1
0	0	0	0	0	0	0	0	0	0
7	1	1	1	- 1	- 1	1	8	6	1
8 3 9 2	$\frac{1}{3}$ $\frac{1}{2}$	$-\frac{7}{3}$	$\frac{1}{3}$ - 4	$ \begin{array}{c} -1 \\ -\frac{1}{3} \\ -\frac{1}{2} \end{array} $	-1 $-\frac{1}{3}$	$\frac{1}{3}$ $-\frac{1}{2}$ 0	3	$\frac{7}{3}$	0
9	1	$\frac{1}{2}$	_ 4	_ 1	1	_ 1	5	4	0
	2 0	2	0	0	$\frac{1}{2}$	2	0	0	
0 11	1	0 1	1	- <u>1</u>	- 1	1	12	10	0 1
0	0	0	0	0	0	0	0	0	0
13	1	1	1	- 1	- 1	1	14	12	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0		0	0	0	0
4			$\frac{1}{4}$		$0 \\ \frac{1}{4}$		$\frac{17}{4}$	15	0
	$\frac{1}{4}$	$-\frac{15}{4}$	4	$-\frac{1}{4}$ -1	4	$-\frac{1}{4}$	4	15 4	
17	1	1	1	-1	-1	1	18	16	1
0	0	0	0	0	0	0	0	0	0
19	1	1	1	- 1	-1	1	20	18	1
0	0	0 0	0	0	0	0 0	0 0	0	0
	0	0	0	0	0	0	0	0	0
0 23	1	1	1	- 1	- 1	1	24	22	1
0	0	0	0	0	0	0	0	0	0
25				$-\frac{1}{2}$	1	1			
25	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$		$\frac{1}{2}$	$-\frac{1}{2}$	13	12	0
0	0	0	0	0	0	0	0	0	0
9	<u>1</u> 3	$\frac{1}{3}$	$-\frac{26}{3}$	$-\frac{1}{3}$	$-\frac{1}{3}$	$\frac{1}{3}$	<u>28</u> 3	<u>26</u> 3	0
0	0	0	0	0	0	0	0	0	0
29	1	1	1	- 1	- 1	1	30	28	1
0	0	0	0	0	0	0	0	0	0
31	1	1	1	- 1	- 1	1	32	30	1
32 5	<u>1</u> 5	$-\frac{31}{5}$	<u>1</u> 5	-1 $-\frac{1}{5}$	$-\frac{1}{5}$	<u>1</u> 5	33 5	31 5	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
37	1	1	1	- 1	- 1	1	38	36	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0

 ${\tt Table[\,RecurseLinnik[\,f,\,n,\,1]\,,\,\,\{n,\,2,\,40\},\,\{f,\,\,funcs\}]\,\,//\,\,{\tt TableForm}}$

2	1	- 1	1	- 1	-1	1	3	1	1
3	1	1	- 2	- 1	-1	1	4	2	1
2	$\frac{1}{2}$	$-\frac{3}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$ $-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	<u>5</u> 2	$\frac{3}{2}$	0
5	1	1	1	- 1	- 1	1	6	4	1
0	0	0	0	0	0	0	0	0	0
7	1	1	1	- 1	- 1	1	8	6	1
8 3	$\frac{1}{3}$	$-\frac{7}{3}$	$\frac{1}{3}$ - 4	$ \begin{array}{c} -1 \\ -\frac{1}{3} \\ -\frac{1}{2} \end{array} $	$-\frac{1}{3}$ $\frac{1}{2}$	$\frac{1}{3}$	3	$\frac{7}{3}$	0
9 2	$\frac{1}{2}$	$\frac{1}{2}$	- 4	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	5	4	0
0	0	0	0	0	0	0	0	0	0
11	1	1	1	- 1	- 1	1	12	10	1
0	0	0	0	0	0	0	0	0	0
13	1	1	1	- 1	-1	1	14	12	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
4	$\frac{1}{4}$	$-\frac{15}{4}$	$\frac{1}{4}$	$-\frac{1}{4}$ -1	$\frac{1}{4}$	$-\frac{1}{4}$	$\frac{17}{4}$	$\frac{15}{4}$	0
17	1	1	1	- 1	-1	1	18	16	1
0	0	0	0	0	0	0	0	0	0
19	1	1	1	- 1	- 1	1	20	18	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
23	1	1	1	- 1	- 1	1	24	22	1
0	0	0	0	0	0	0	0	0	0
$\frac{25}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	0 $-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	13	12	0
0	0	0	0	0	0	0	0	0	0
9	$\frac{1}{3}$	$\frac{1}{3}$	$-\frac{26}{3}$	$-\frac{1}{3}$	$-\frac{1}{3}$	$\frac{1}{3}$	28	<u>26</u> 3	0
0	0	0	0	0	0	0	0	0	0
29	1	1	1	- 1	- 1	1	30	28	1
0	0	0	0	0	0	0	0	0	0
31	1	1	1	- 1	- 1	1	32	30	1
32	$\frac{1}{5}$	$-\frac{31}{5}$	$\frac{1}{5}$	$-\frac{1}{5}$	$-\frac{1}{5}$	<u>1</u> 5	33	<u>31</u> 5	0
 0	5 0	5 0	5 0	5 0	5 0	5 0	5 0	5 0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
37	1	1	1	- 1	- 1	1	38	36	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0