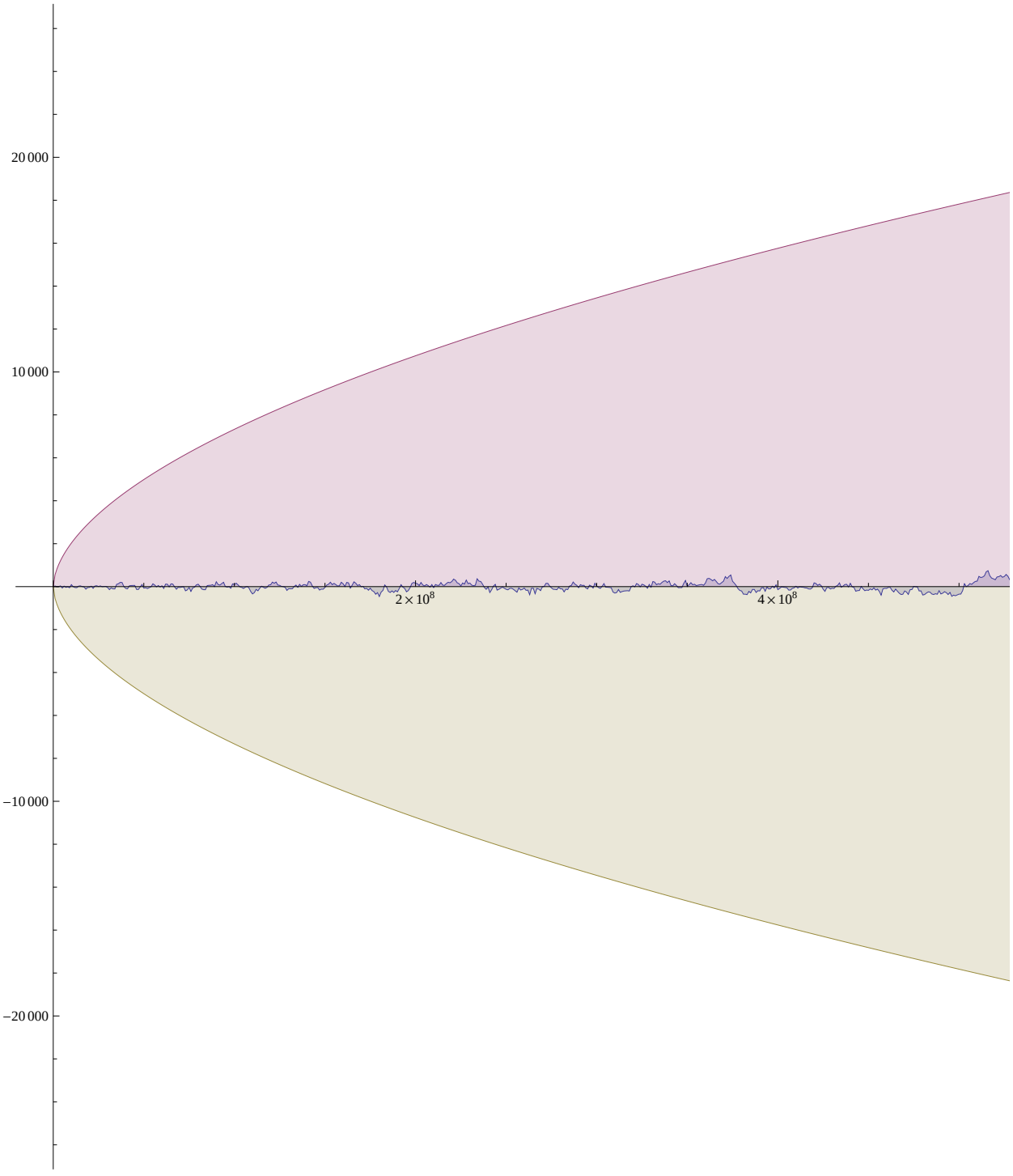
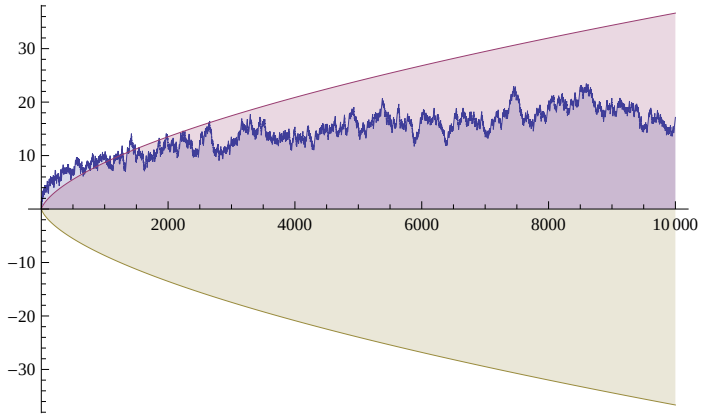
```
p[n_] := Sum[1 / j PrimePi[n^(1 / j)], {j, 1, Log[2, n]}]
DiscretePlot[{LogIntegral[n] - p[n], 1 / (8 Pi) n^(1 / 2) Log[n],
  -1 / (8 Pi) n^(1 / 2) Log[n]}, {n, 1, 1 000 000 000, 1 000 000}]
```



```
DiscretePlot[ {LogIntegral[n] - PrimePi[n],
  1 / (8 Pi) n^(1 / 2) Log[n], -1 / (8 Pi) n^(1 / 2) Log[n]}, {n, 1, 10 000}]
```

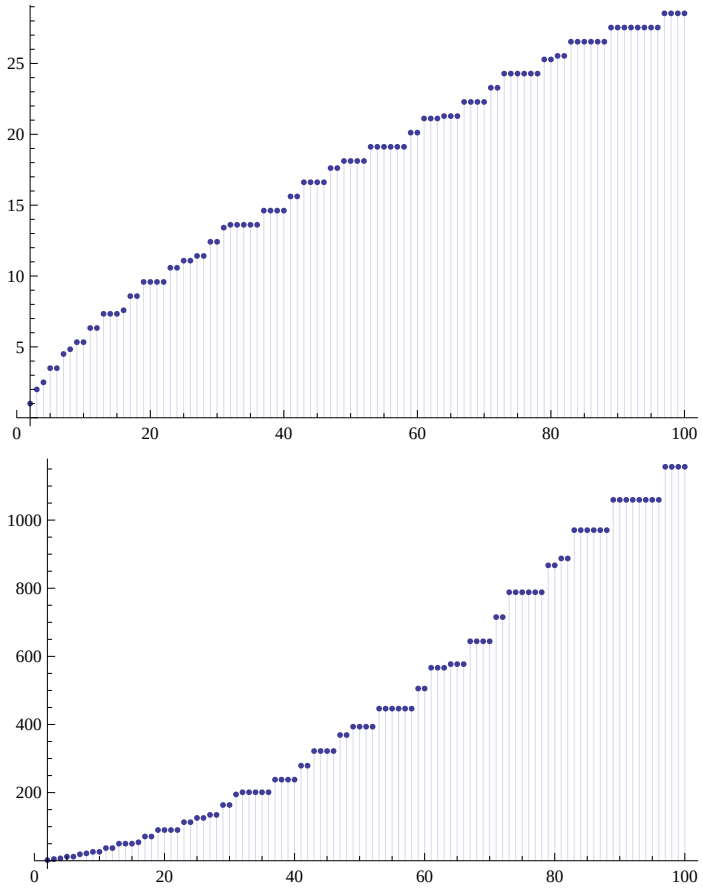



```
pp[n_, j_, k_ ] :=
 pp[n, j, k] = If[ n < j, 0, 1 / k - pp[Floor[n / j], 2, k + 1 ] + pp[n, j + 1, k]]
pp[100, 2, 1]
```

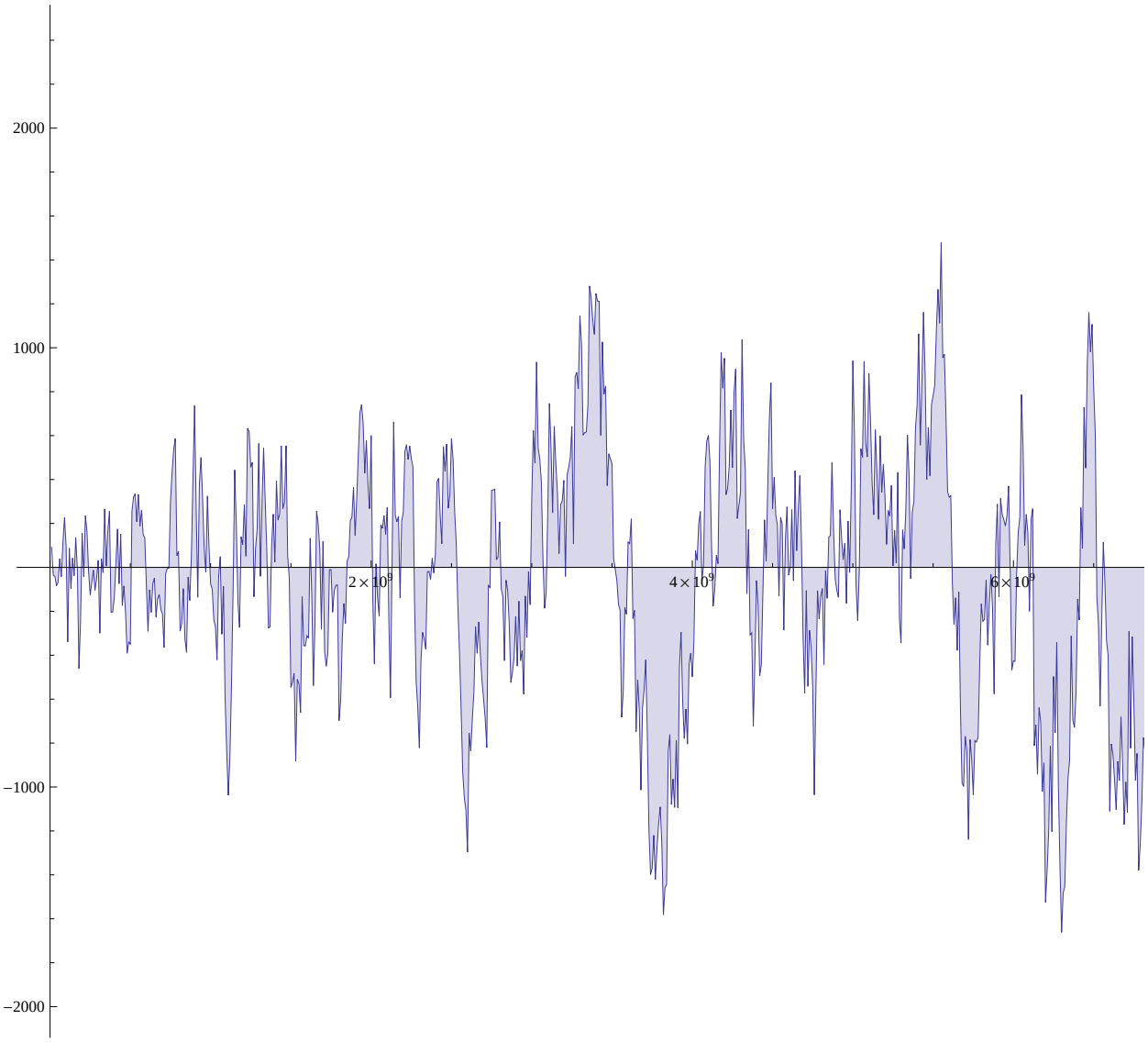
$$\frac{428}{15}$$

```
ps[n_, j_, k_ ] := If[ n < j, 0, j (1 / k - ps[Floor[n / j], 2, k + 1 ]) + ps[n, j + 1, k]]
```

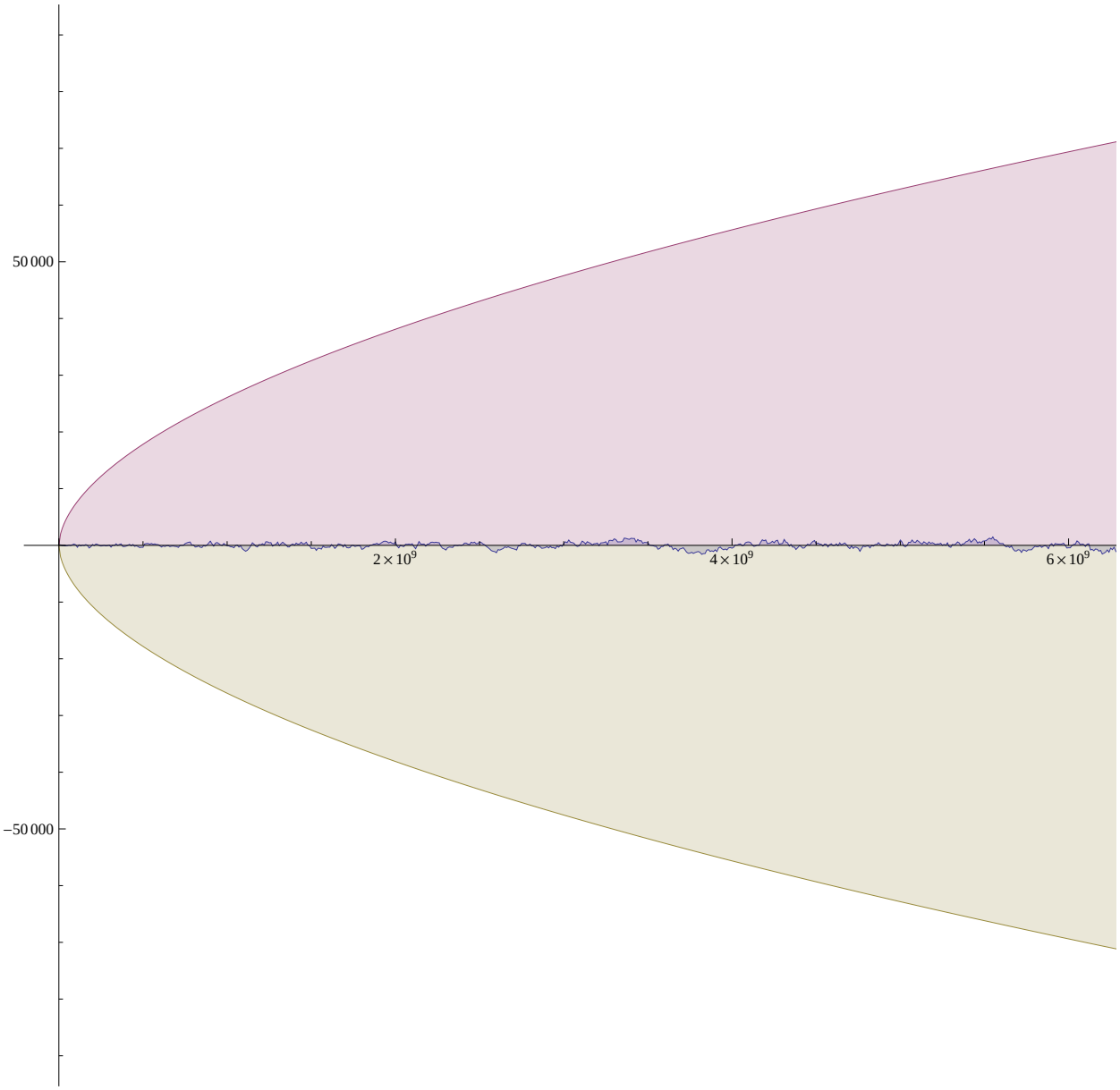
```
DiscretePlot[pp[n, 2, 1], {n, 2, 100}]
DiscretePlot[ps[n, 2, 1], {n, 2, 100}]
```



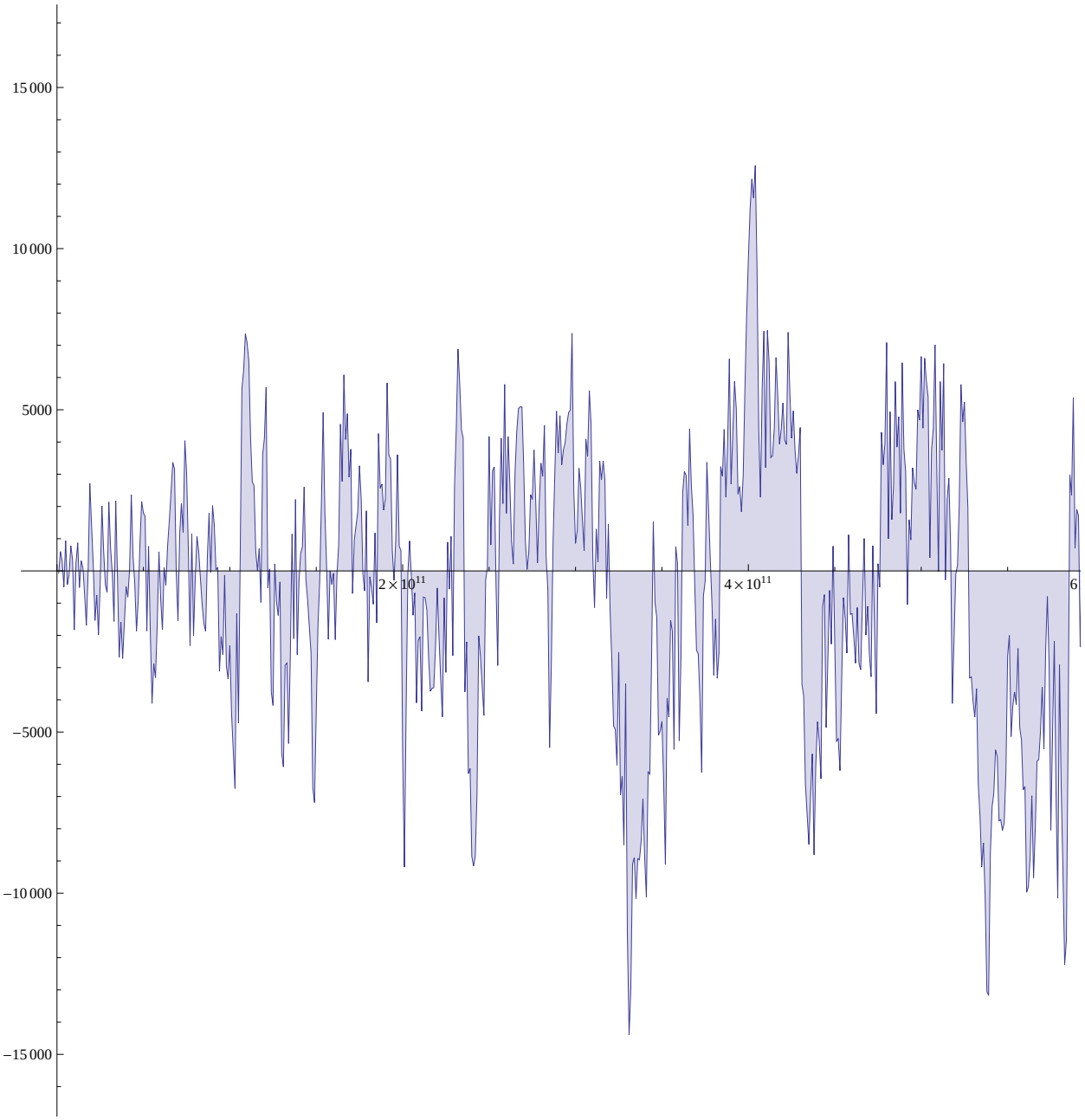
```
DiscretePlot[{LogIntegral[n] - p[n]}, {n, 1, 10 000 000 000, 10 000 000}]
```



```
DiscretePlot[{LogIntegral[n] - p[n], 1 / (8 Pi) n^(1 / 2) Log[n], -1 / (8 Pi) n^(1 / 2) Log[n]},
 {n, 1, 10 000 000 000, 10 000 000}]
```



```
DiscretePlot[{LogIntegral[n] - p[n]}, {n, 1, 1 000 000 000 000, 1 000 000 000}]
```




```
LogIntegral[17.] - Log[Log[17]] - EulerGamma
```

7.25784

```
PrimeK[n_] := If[n == 1, 0, FullSimplify[MangoldtLambda[n] / Log[n]]]
Linnik[n_, k_] := 1 / k - Sum[If[j == 1 || n == j, 0, Linnik[j, k + 1]], {j, Divisors[n]}]
Table[{n, PrimeK[n], Linnik[n, 1]}, {n, 2, 100}] // TableForm
```

2	1	1
3	1	1
4	$\frac{1}{2}$	$\frac{1}{2}$
5	1	1

6	0	0
7	1	1
8	$\frac{1}{3}$	$\frac{1}{3}$
9	$\frac{1}{2}$	$\frac{1}{2}$
10	0	0
11	1	1
12	0	0
13	1	1
14	0	0
15	0	0
16	$\frac{1}{4}$	$\frac{1}{4}$
17	1	1
18	0	0
19	1	1
20	0	0
21	0	0
22	0	0
23	1	1
24	0	0
25	$\frac{1}{2}$	$\frac{1}{2}$
26	0	0
27	$\frac{1}{3}$	$\frac{1}{3}$
28	0	0
29	1	1
30	0	0
31	1	1
32	$\frac{1}{5}$	$\frac{1}{5}$
33	0	0
34	0	0
35	0	0
36	0	0
37	1	1
38	0	0
39	0	0
40	0	0
41	1	1
42	0	0
43	1	1
44	0	0
45	0	0
46	0	0
47	1	1
48	0	0
49	$\frac{1}{2}$	$\frac{1}{2}$
50	0	0
51	0	0
52	0	0
53	1	1
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0

59	1	1
60	0	0
61	1	1
62	0	0
63	0	0
64	$\frac{1}{6}$	$\frac{1}{6}$
65	0	0
66	0	0
67	1	1
68	0	0
69	0	0
70	0	0
71	1	1
72	0	0
73	1	1
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	1	1
80	0	0
81	$\frac{1}{4}$	$\frac{1}{4}$
82	0	0
83	1	1
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	1	1
90	0	0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0	0
97	1	1
98	0	0
99	0	0
100	0	0

```
PrimeK[n_] := If[n == 1, 0, FullSimplify[MangoldtLambda[n] / Log[n]]]
d[n_, z_] := Product[Pochhammer[z, a = p[[2]]] / a!, {p, FI[n]}];
FI[n_] := FactorInteger[n]; FI[1] := {}
Table[{n, D[d[n, z], z] /. z → 0, PrimeK[n]}, {n, 2, 100}] // TableForm
```

2	1	1
3	1	1
4	$\frac{1}{2}$	$\frac{1}{2}$
5	1	1
6	0	0
7	1	1

8	$\frac{1}{3}$	$\frac{1}{3}$
9	$\frac{1}{2}$	$\frac{1}{2}$
10	0	0
11	1	1
12	0	0
13	1	1
14	0	0
15	0	0
16	$\frac{1}{4}$	$\frac{1}{4}$
17	1	1
18	0	0
19	1	1
20	0	0
21	0	0
22	0	0
23	1	1
24	0	0
25	$\frac{1}{2}$	$\frac{1}{2}$
26	0	0
27	$\frac{1}{3}$	$\frac{1}{3}$
28	0	0
29	1	1
30	0	0
31	1	1
32	$\frac{1}{5}$	$\frac{1}{5}$
33	0	0
34	0	0
35	0	0
36	0	0
37	1	1
38	0	0
39	0	0
40	0	0
41	1	1
42	0	0
43	1	1
44	0	0
45	0	0
46	0	0
47	1	1
48	0	0
49	$\frac{1}{2}$	$\frac{1}{2}$
50	0	0
51	0	0
52	0	0
53	1	1
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	1	1
60	0	0

61	1	1
62	0	0
63	0	0
64	$\frac{1}{6}$	$\frac{1}{6}$
65	0	0
66	0	0
67	1	1
68	0	0
69	0	0
70	0	0
71	1	1
72	0	0
73	1	1
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	1	1
80	0	0
81	$\frac{1}{4}$	$\frac{1}{4}$
82	0	0
83	1	1
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	1	1
90	0	0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0	0
97	1	1
98	0	0
99	0	0
100	0	0