```
ClearAll["Global`*"]
```

```
$RecursionLimit = 10 000
```

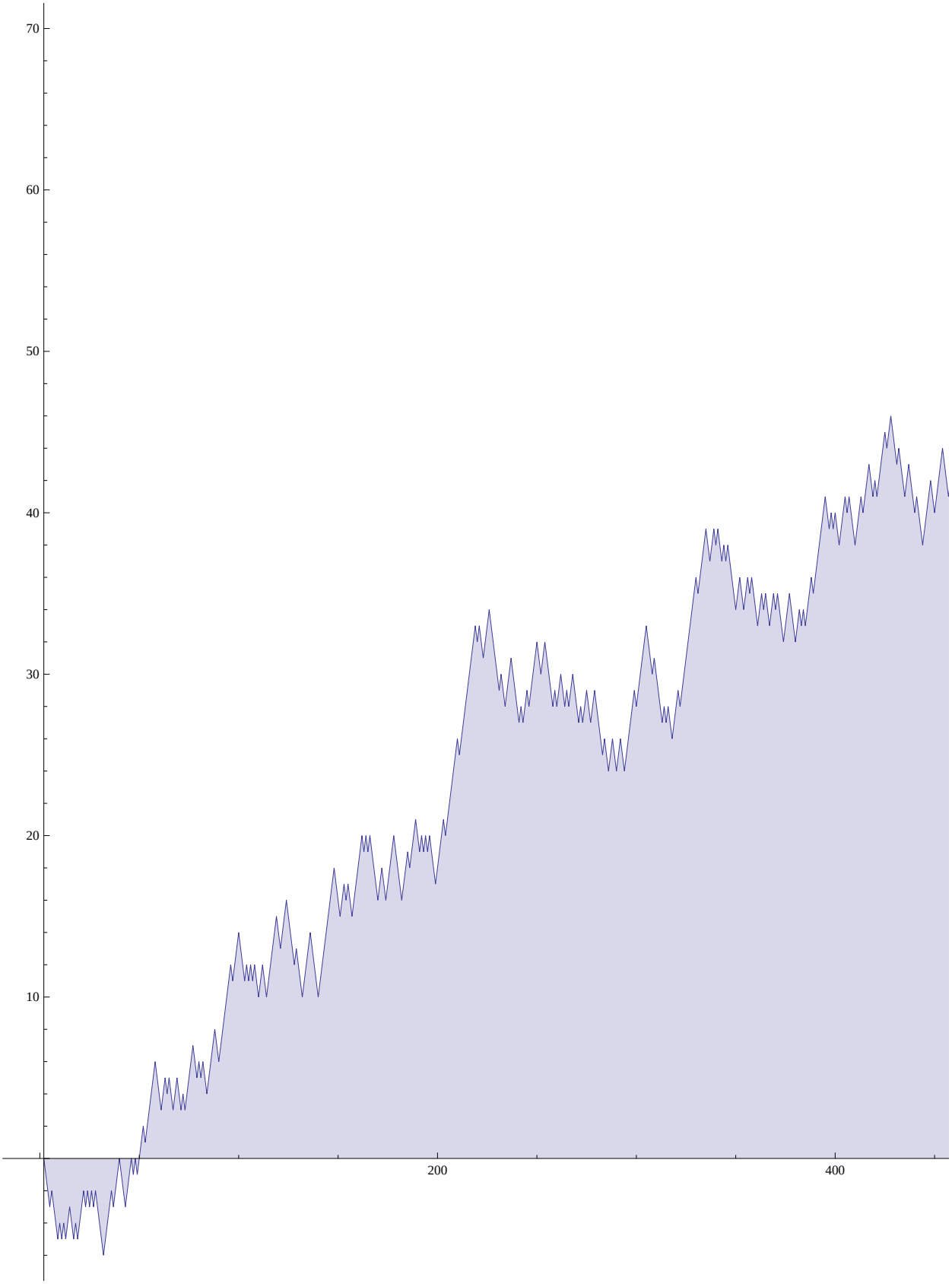
```
10 000
```

```
K[n_] := If[ n == 1, 0, FullSimplify[MangoldtLambda[n] / Log[n]]]
pk[n_] := If[ K[n] == 0, 0, -((2^(1 / K[n]) - 1) (K[n]^1))]
F[n_, 0] := 1; F[n_, k_] := F[n, k] = Sum[ pk[j] F[Floor[n / j], k - 1], {j, 2, n}]
f[n_, k_] := f[n, k] = F[n, k] - F[n - 1, k]; f[1, 0] := 1
pp[n_, z_] := pp[n, z] = Sum[ z^k / k! f[n, k], {k, 0, Log[2, n]}]
PP[n_, z_] := PP[n, z] = Sum[ pp[j, z], {j, 1, n}]
```

```
F[100, 1]
```

$$-\frac{898}{15}$$

```
DiscretePlot[ PP[n, 1], {n, 2, 1000}]
```


70
60
50
40
30
20
10
200
400

```
F[1, 1]
```

```
0
```

```
Table[{n, pp[n, 1], pp[n, -1]}, {n, 1, 100}] // TableForm
```

1	1	1
2	−1	1
3	−1	1
4	−1	2
5	−1	1
6	1	1
7	−1	1
8	−1	4
9	−1	2
10	1	1
11	−1	1
12	1	2
13	−1	1
14	1	1
15	1	1
16	−1	8
17	−1	1
18	1	2
19	−1	1
20	1	2
21	1	1
22	1	1
23	−1	1
24	1	4
25	−1	2
26	1	1
27	−1	4
28	1	2
29	−1	1
30	−1	1
31	−1	1
32	−1	16
33	1	1
34	1	1
35	1	1
36	1	4
37	−1	1
38	1	1
39	1	1
40	1	4
41	−1	1
42	−1	1
43	−1	1
44	1	2
45	1	2
46	1	1
47	−1	1
48	1	8
49	−1	2
50	1	2
51	1	1

52	1	2
53	−1	1
54	1	4
55	1	1
56	1	4
57	1	1
58	1	1
59	−1	1
60	−1	2
61	−1	1
62	1	1
63	1	2
64	−1	32
65	1	1
66	−1	1
67	−1	1
68	1	2
69	1	1
70	−1	1
71	−1	1
72	1	8
73	−1	1
74	1	1
75	1	2
76	1	2
77	1	1
78	−1	1
79	−1	1
80	1	8
81	−1	8
82	1	1
83	−1	1
84	−1	2
85	1	1
86	1	1
87	1	1
88	1	4
89	−1	1
90	−1	2
91	1	1
92	1	2
93	1	1
94	1	1
95	1	1
96	1	16
97	−1	1
98	1	2
99	1	2
100	1	4

```
Expand[(2^(1 / rr[n]) - 1) rr[n]]
```

$$-\text{rr}[n] + 2^{\frac{1}{\text{rr}[n]}}\,\text{rr}[n]$$