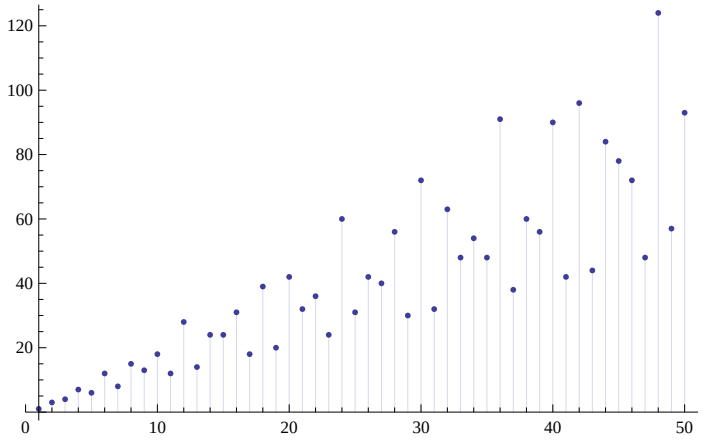
```
PP[n_, k_] := Sum[ 1 / k - PP[n / j, k + 1], { j, 2, n }]
```

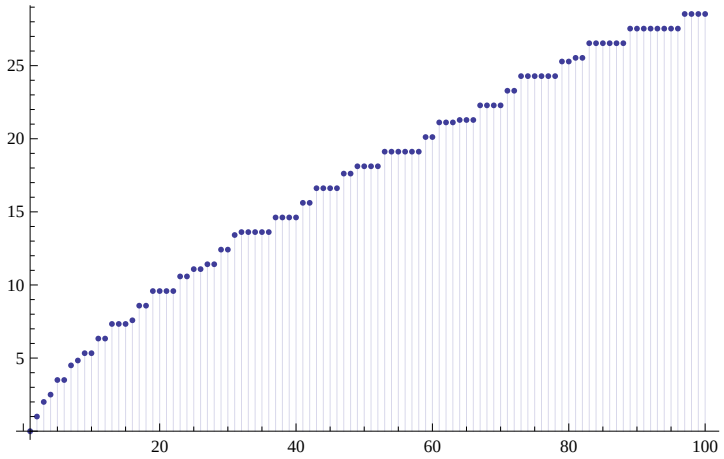
```
PP[105, 1]
```

$$\frac{458}{15}$$

```
DiscretePlot[DivisorSum[n, # &], {n, 50}]
```




```
DiscretePlot[PP[n, 1], {n, 100}]
```




```
PS[n_] := FullSimplify[MangoldtLambda[ n] / Log[n]]
```

```
PS[25]
```

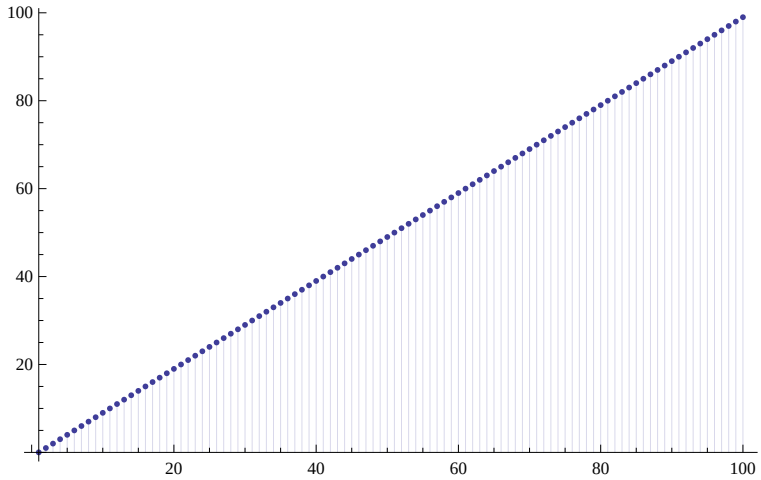
$$\frac{1}{2}$$

```
QQ[n_, k_, a_] := Sum[ PS[j] (a^k / k! + QQ[n / j, k + 1, a]), {j, 2, n}]
```

```
QQ[100, 1, 1]
```

99

```
DiscretePlot[QQ[n, 1, 1], {n, 100}]
```

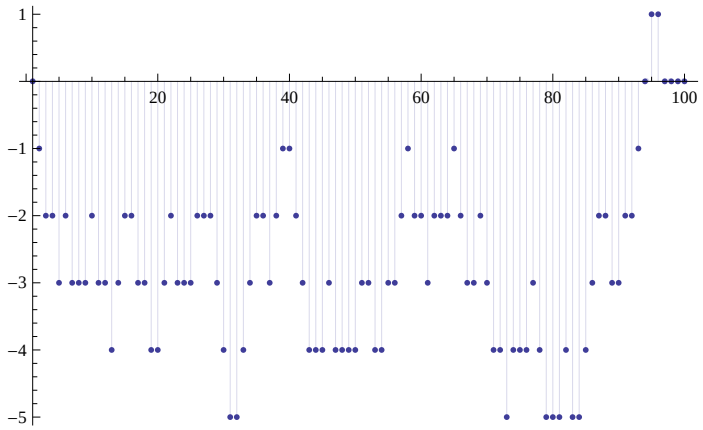



```
QR[n_, a_] := N[QQ[n, 1, a] / a]
```

```
QR[100, .00001]
```

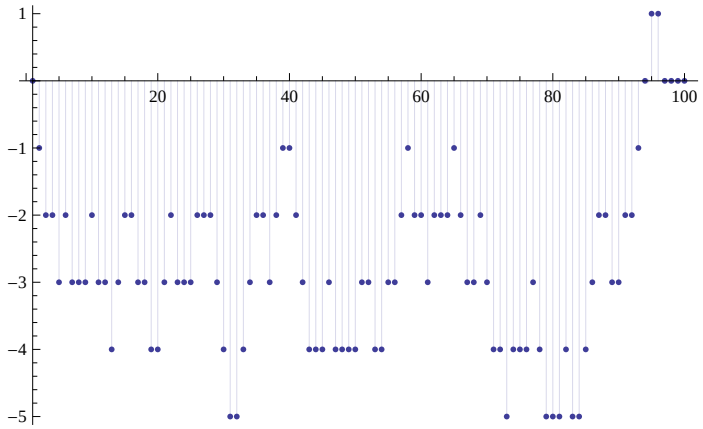
```
28.5338
```

```
DiscretePlot[-QR[n, -1], {n, 100}]
```




```
MM[n_] := Sum[ MoebiusMu[ j ], {j, 2, n}]
```

```
DiscretePlot[MM[n], {n, 100}]
```



```
DivisorSum[6, # &]
```

12

```
DD[n_, 2] := DivisorSum[n, Function[m, 1]]
```

```
DD[12, 2]
```

```
DD[n_, k_] := DivisorSum[n, Function[m, DD[n / m, k - 1]]]
```

```
DD[6, 4]
```

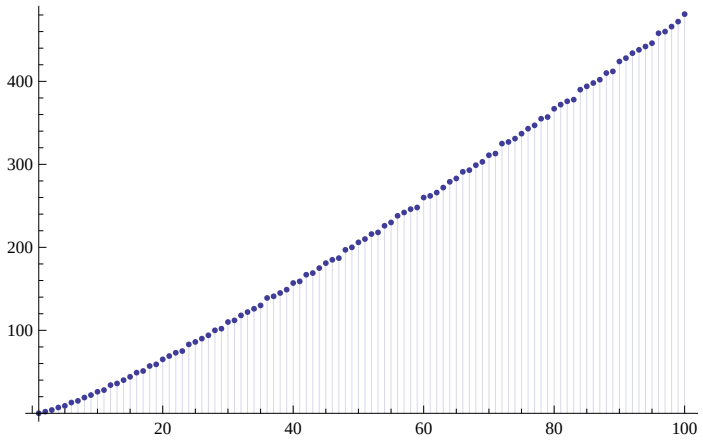
16

```
DDD[n_, k_] := Sum[DD[j, k], {j, 1, n}]
```

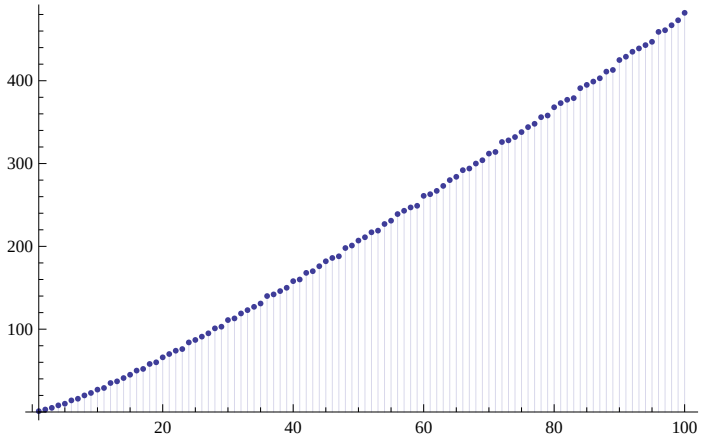
```
DDD[100, 2]
```

482

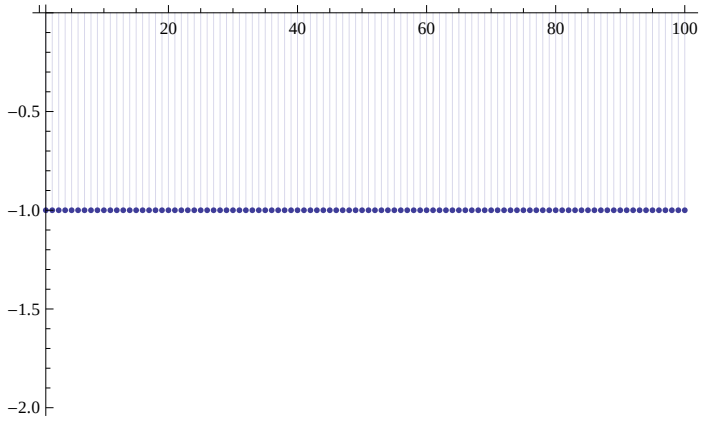
```
DiscretePlot[QR[n, 2] * 2, {n, 100}]
```



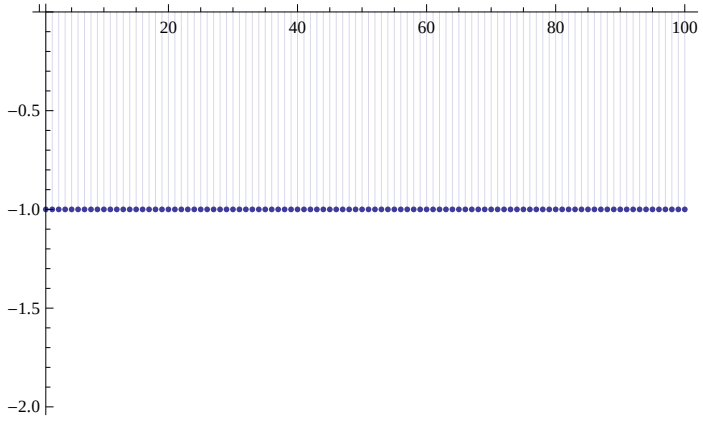

```
DiscretePlot[DDD[n, 2], {n, 100}]
```



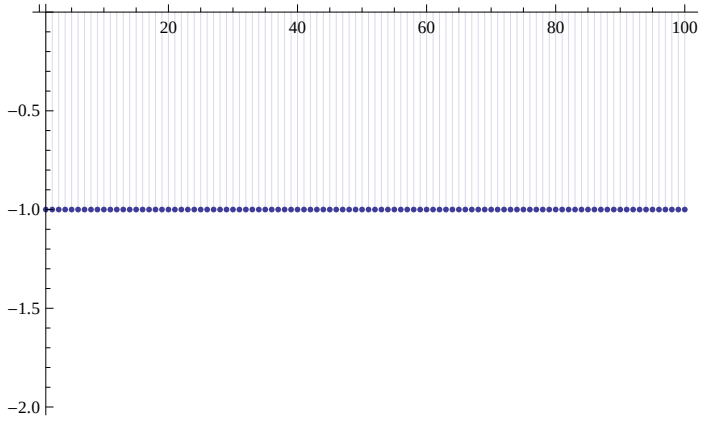
```
DiscretePlot[QR[n, 2] * 2 - DDD[n, 2], {n, 100}]
```




```
DiscretePlot[QR[n, 3] * 3 - DDD[n, 3], {n, 100}]
```

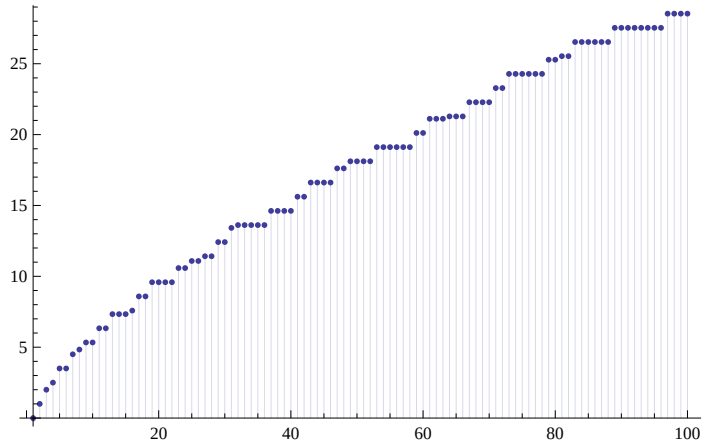



```
DiscretePlot[QR[n, 4] * 4 - DDD[n, 4], {n, 100}]
```



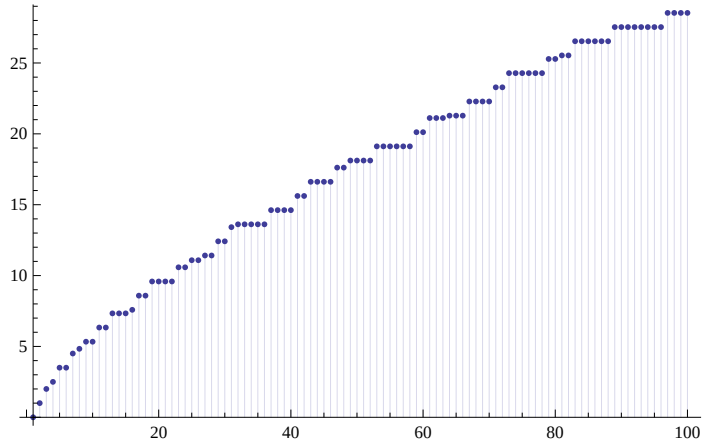

```
PPP[n_, k_, a_] := Sum[a MoebiusMu[j] (1 / k - PPP[n / j, k + 1, a]), {j, 2, n}]
PPQ[n_, a_] := PPP[n, 1, a] / a
```

```
DiscretePlot[-PPQ[n, 1], {n, 100}]
```



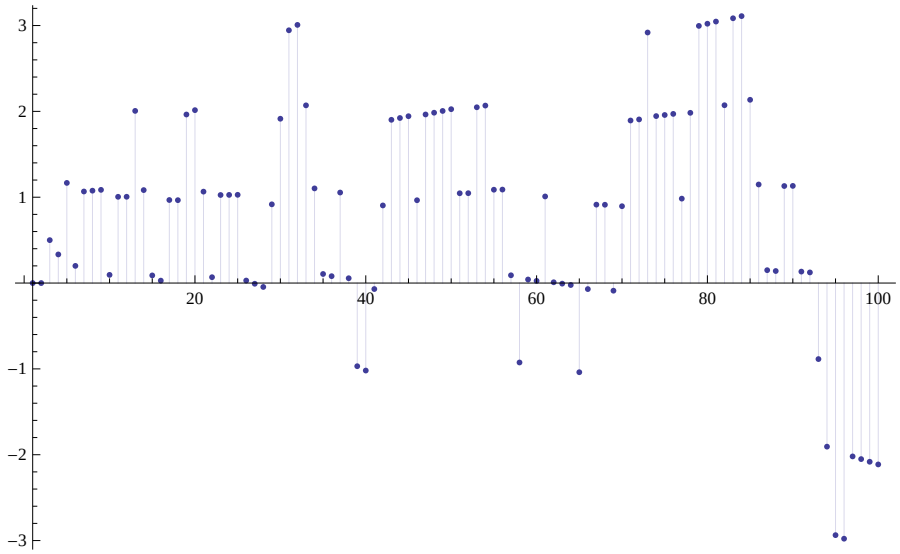

```
PPR[n_, k_, a_] := Sum[a (1 / k - PPR[n / j, k + 1, a]), {j, 2, n}]
PPS[n_, a_] := PPR[n, 1, a] / a
```

```
DiscretePlot[PPS[n, 1], {n, 100}]
```




```
PPT[n_, k_] := (Floor[n] - n) - Sum[PPT[n / j, k + 1], {j, 2, n}]
```

```
DiscretePlot[PPT[n, .000001], {n, 100}]
```

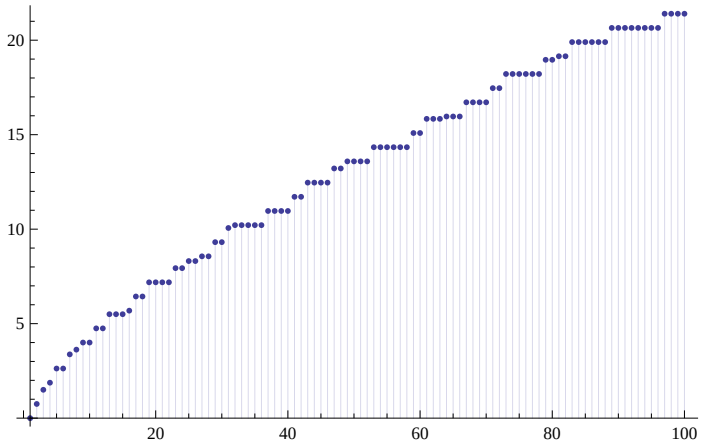



```
Binomial[3, 1]
```

3

```
PPD[n_, k_] := Sum[ DD[j, 4] (1 / k - PPD[n / j, k + 1]), { j, 2, n }]
```

```
DiscretePlot[PPD[n, 1] / 4, {n, 100}]
```

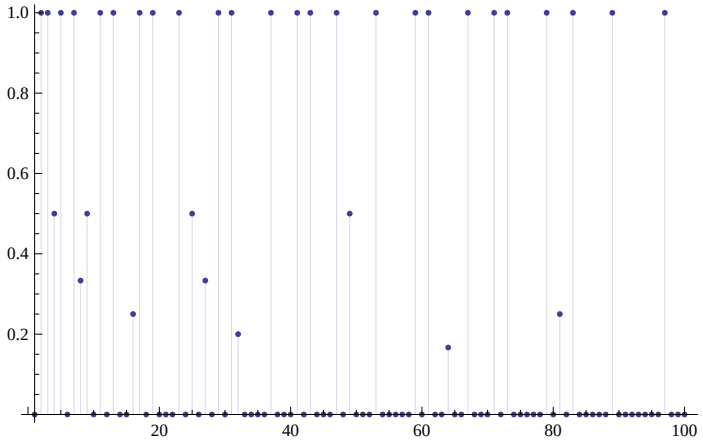



```
QS[n_, a_] := N[(QQ[n, 1, a] - QQ[n - 1, 1, a]) / a]
```

```
QS[99, 1]
```

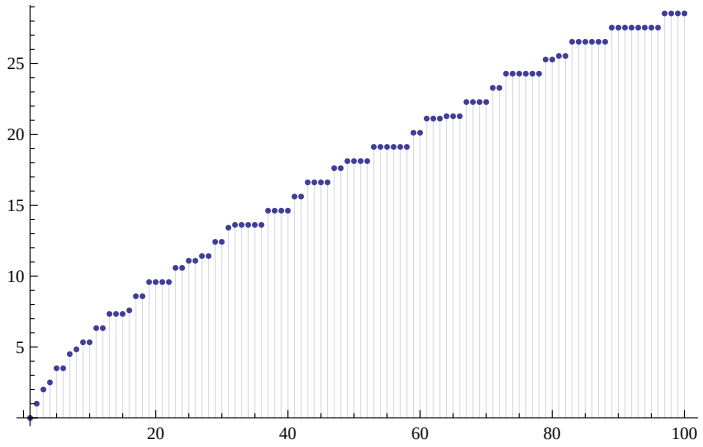
1.

```
DiscretePlot[QS[n, 0.00000001], {n, 100}]
```

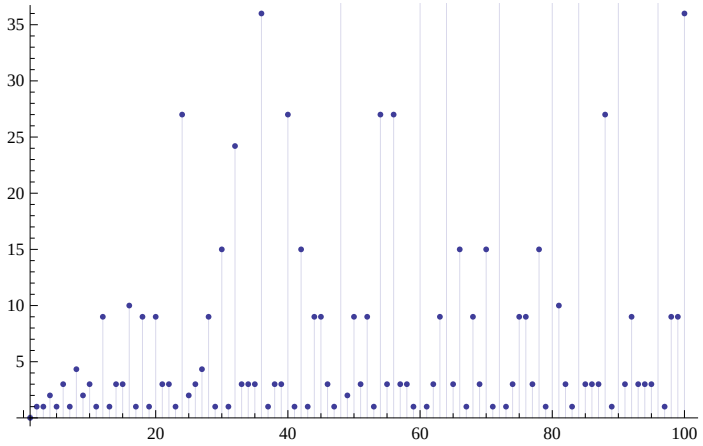



```
PPE[n_, k_] := Sum[ QS[j, 1] (1 / k - PPE[n / j, k + 1]), { j, 2, n }]
```

```
DiscretePlot[PPE[n, 1] / 1, {n, 100}]
```




```
DiscretePlot[PPS[n, -2] - PPS[n - 1, -2], {n, 100}]
```

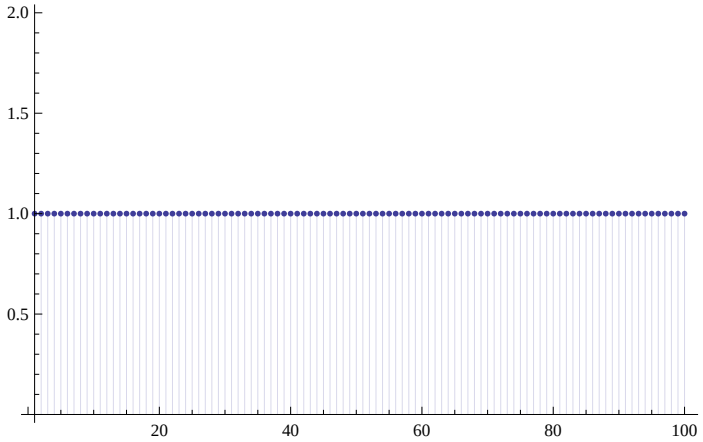



```
PSA[n_, a_ ] := PPS[n, a] - PPS[n - 1, a]
```

```
PSA[26, 2]
```

```
-1
```

```
DiscretePlot[Re[PSA[53, (-.001 + 2 * (n / 100))]] , {n, 100}]
```




```
PSA[23, 4]
```

```
1
```

```
PPR[n_, k_, a_] := Sum[a (1 / k - PPR[n / j, k + 1, a]), {j, 2, n}]
PPS[n_, a_] := PPR[n, 1, a] / a
```

```
DiscretePlot[Re[PPS[46, 1 + I (-221.001 + 422 * (n / 100))]] , {n, 100}]
```

```
Table[PDF[BinomialDistribution[50, p], k], {p, {0.3, 0.5, 0.8}}]
DiscretePlot[Evaluate[%], {k, 1, 50}]
```

$$\left\{\begin{cases} 0.3^{k}\, 0.7^{50-k}\, \text{Binomial}[50, k] & 0 \le k \le 50 \\ 0 & \text{True} \end{cases},\right.$$

$$\left.\begin{cases} 8.88178 \times 10^{-16}\, \text{Binomial}[50, k] & 0 \le k \le 50 \\ 0 & \text{True} \end{cases}, \begin{cases} 0.2^{50-k}\, 0.8^{k}\, \text{Binomial}[50, k] & 0 \le k \le 50 \\ 0 & \text{True} \end{cases}\right\}$$

```
DiscretePlot3D[
 PDF[MultivariatePoissonDistribution[3, {1, 1}], {t, u}], {t, 0, 10}, {u, 0, 10}]
```

```
DiscretePlot3D[PPS[i, 1 + j * .05 + .000001], {j, -30, 30}, {i, 102, 200}, ExtentSize → Full]
```

```
DiscretePlot3D[PPS[i, 1 + j * .05 + .000001], {j, -30, 30}, {i, 2, 30}, ExtentSize → Full]
```