

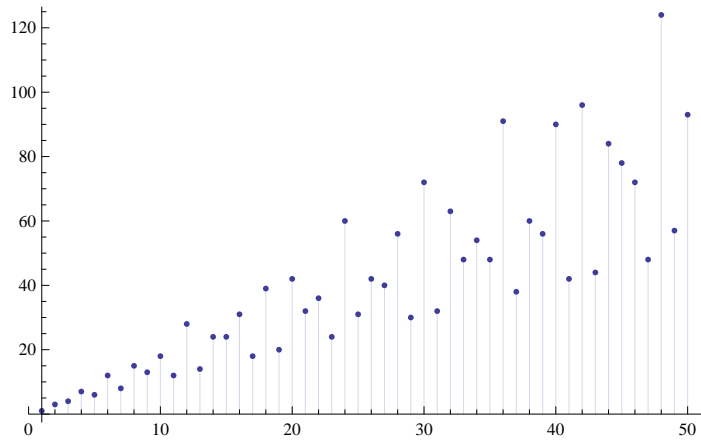
```
PP[n_, k_] := Sum[1/k - PP[n/j, k+1], {j, 2, n}]
```

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

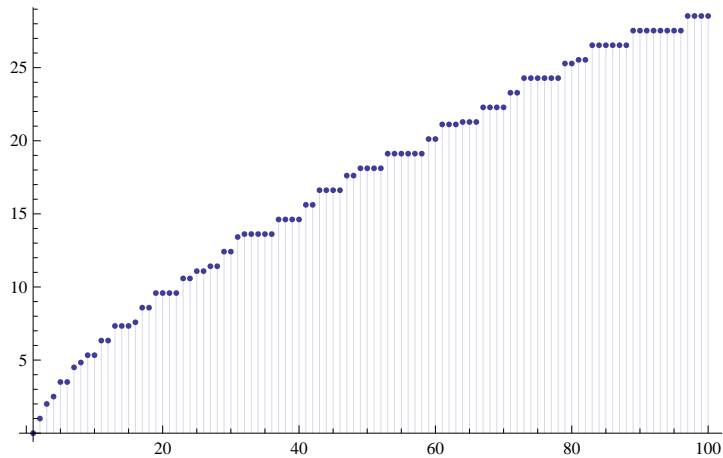
$$\frac{458}{15}$$

15

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



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



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

```
PS[25]
```

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

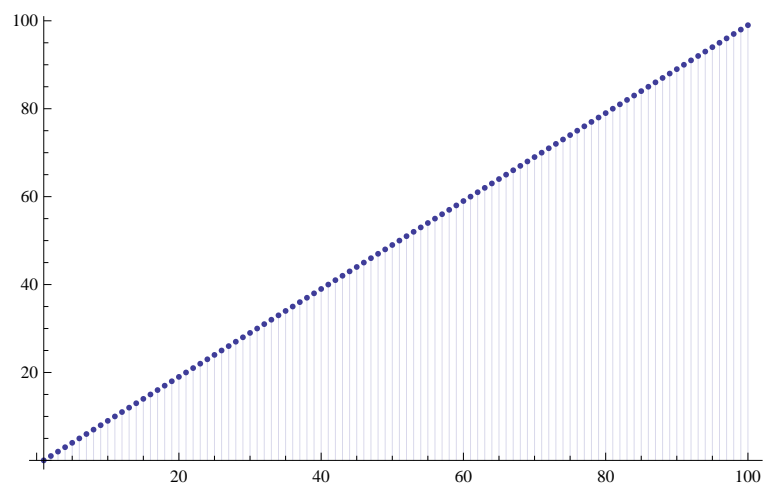
2

```
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}]
```

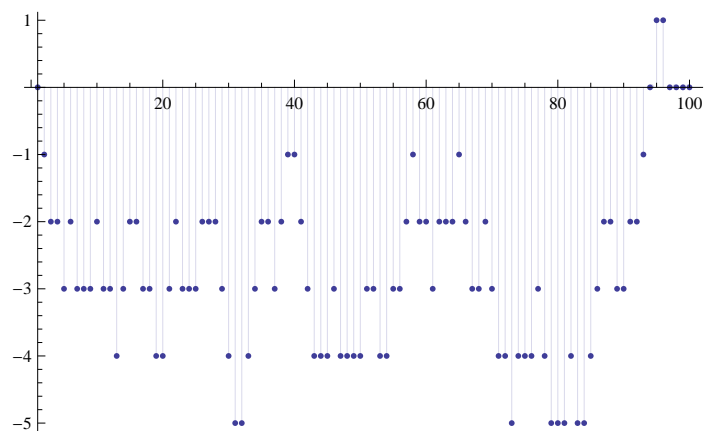


```
QR[n_, a_] := N[QQ[n, 1, a] / a]
```

```
QR[100, .000000001]
```

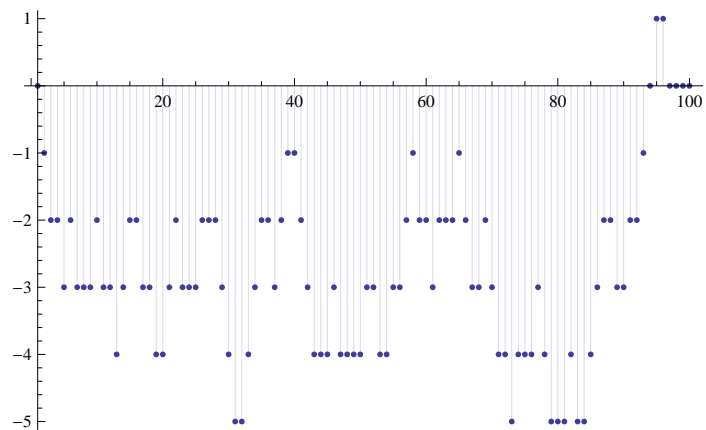
```
28.5333
```

```
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]
```

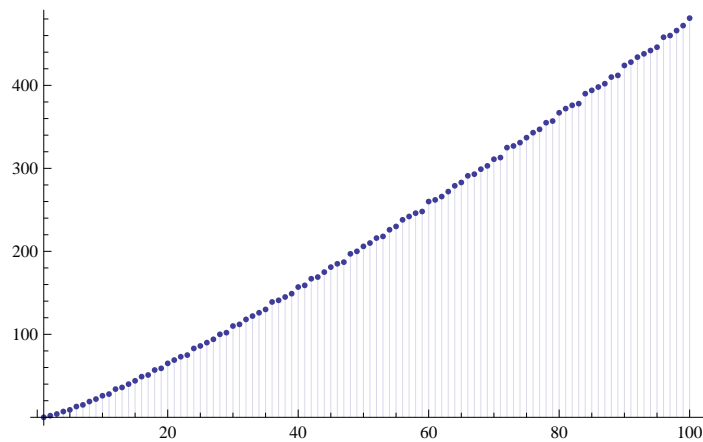
```
16
```

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

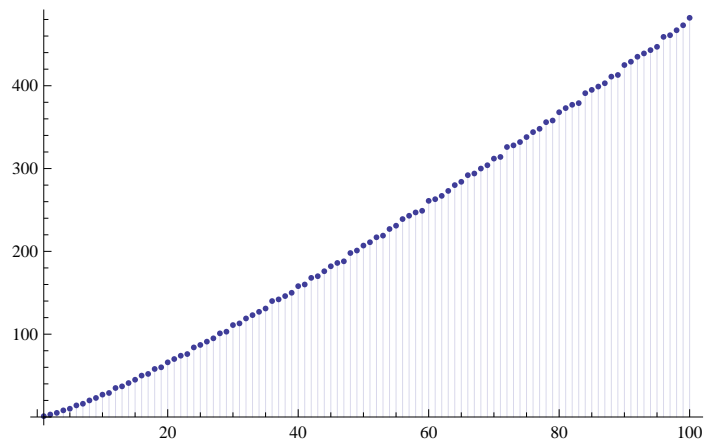
```
DDD[100, 2]
```

```
482
```

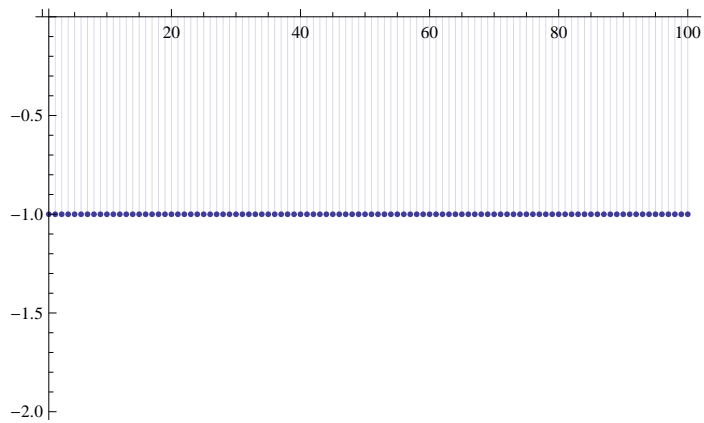
```
DiscretePlot[QR[n, 2] * 2, {n, 100}]
```



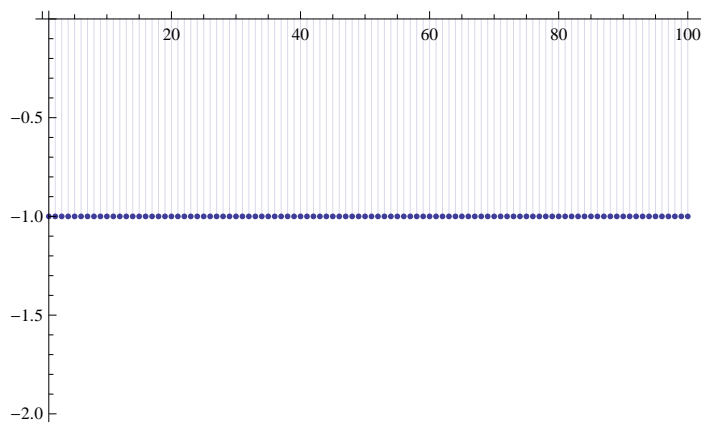
```
DiscretePlot[DDD[n, 2], {n, 100}]
```



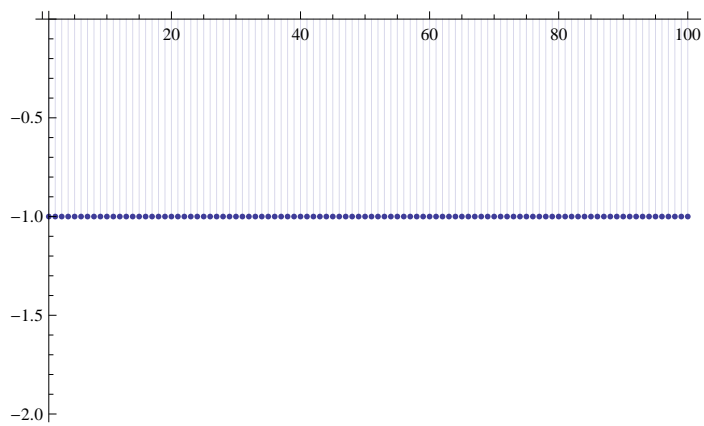
DiscretePlot[QR[n, 2] * 2 - DDD[n, 2], {n, 100}]



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



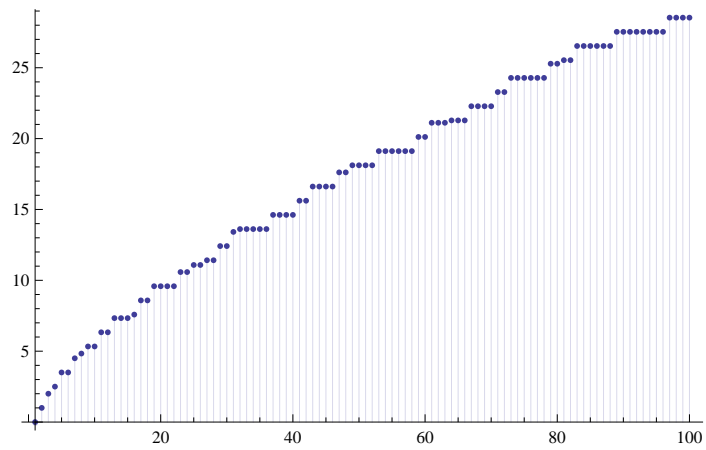
DiscretePlot[QR[n, 4] * 4 - DDD[n, 4], {n, 100}]



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

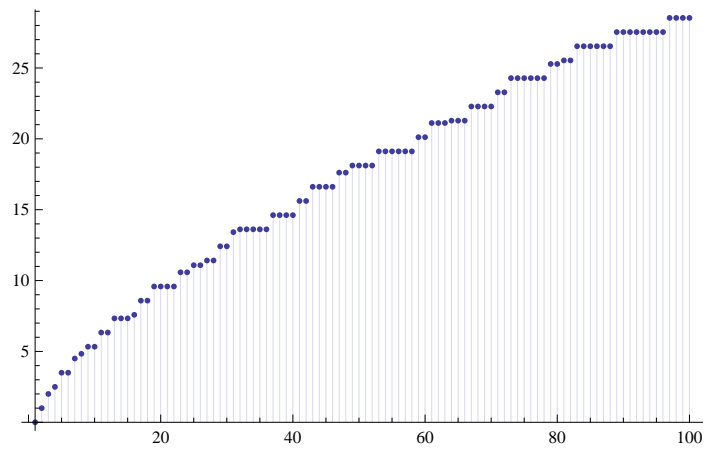
```
DiscretePlot[-PPQ[n, 1], {n, 100}]
```



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

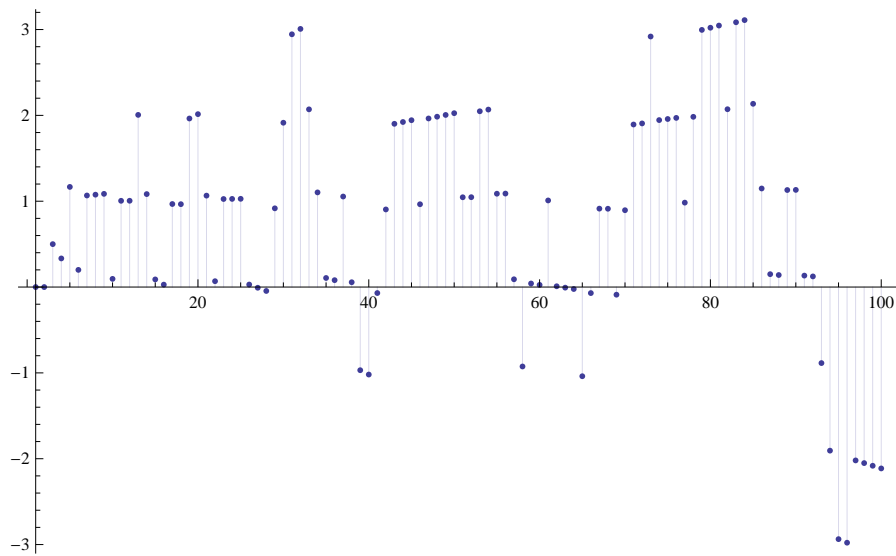
```
PPS[n_, a_] := PPR[n, 1, a] / a
```

```
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}]
```

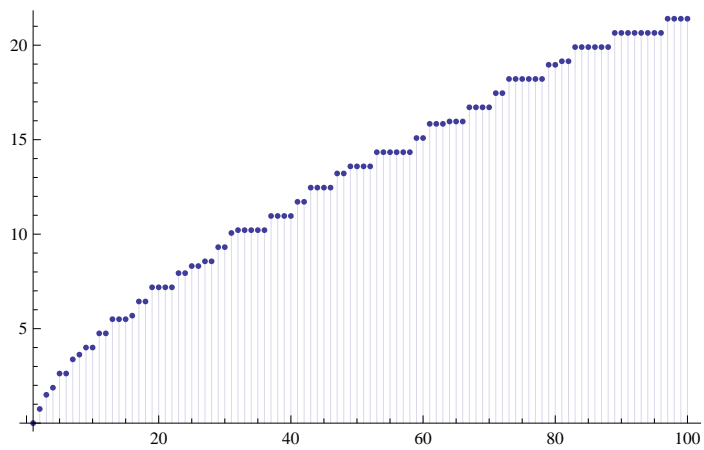


```
Binomial[3, 1]
```

```
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}]
```

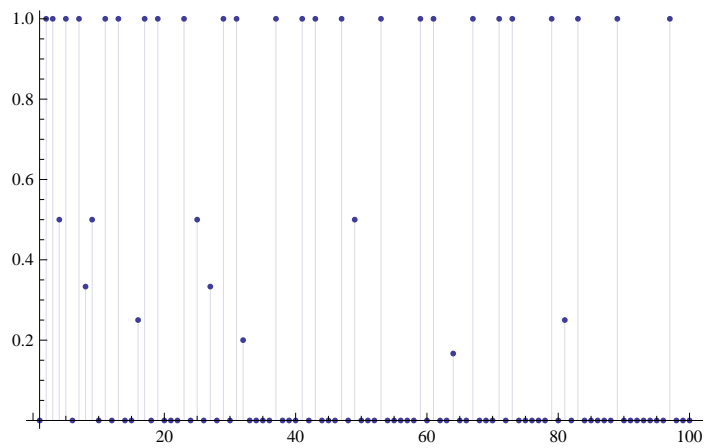


```
QS[n_, a_] := N[(QQ[n, 1, a] - QQ[n - 1, 1, a]) / a]
```

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

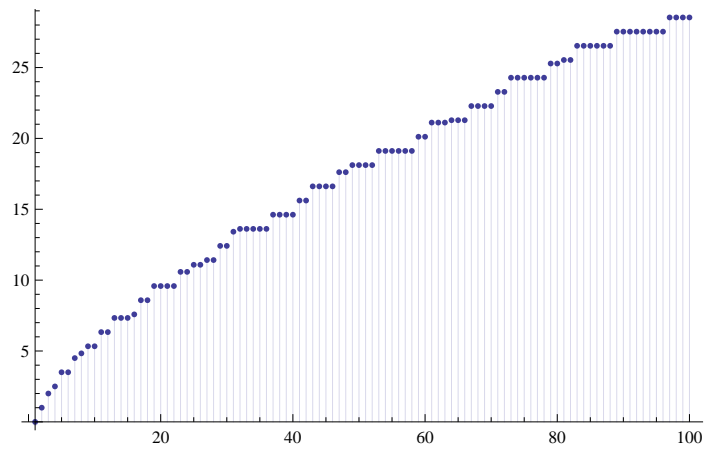
```
1.
```

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

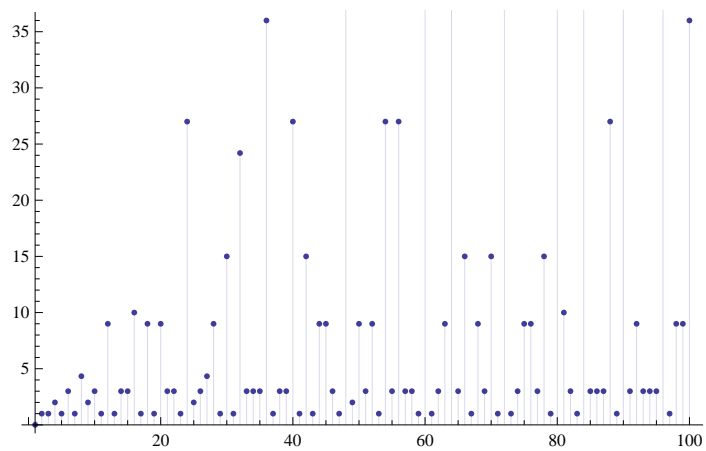


```
PPE[n_, k_] := Sum[QS[j, 1] (1 / k - PPE[n / j, k + 1]), {j, 2, n}]
```

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



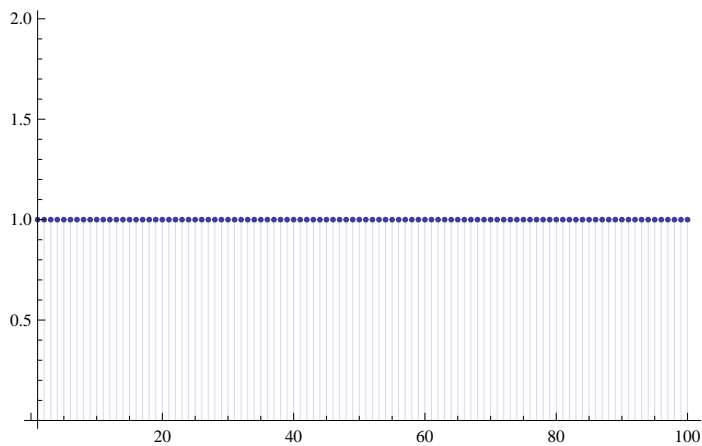
```
DiscretePlot[PPS[n, -2] - PPS[n - 1, -2], {n, 100}]
```



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

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

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



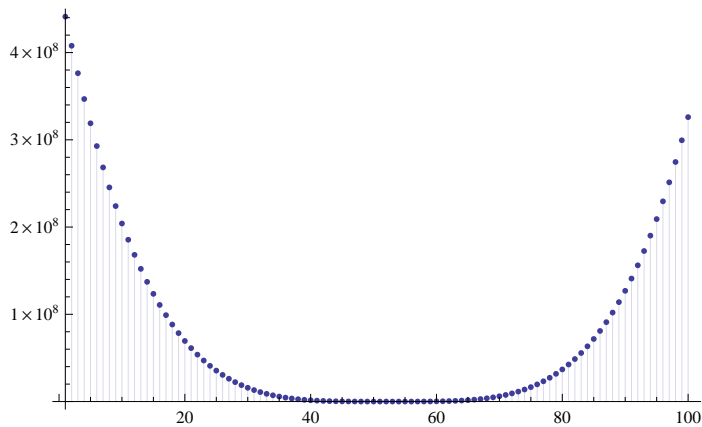
```
PSA[23, 4]
```

```
1
```

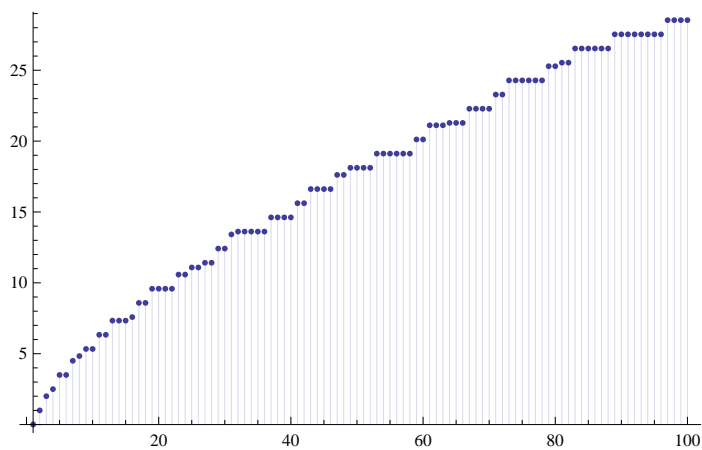
```
PPR[n_, k_, a_] := Sum[a (1 / k - PPR[n / j, k + 1, a]), {j, 2, n}]
```

```
PPS[n_, a_] := PPR[n, 1, a] / a
```

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



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



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

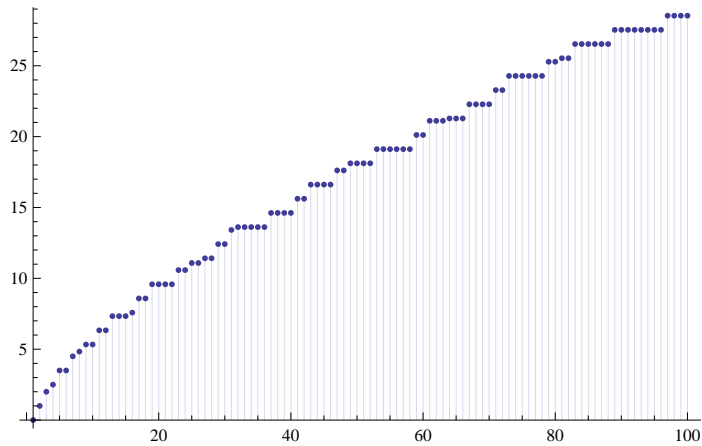


```
PX[100, 1, 2]
```

```
55 684
```

```
1155
```

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



```
LL[n_, a_] := Sum[a (Log[j] - LL[n / j, a]), {j, 2, n}]
```

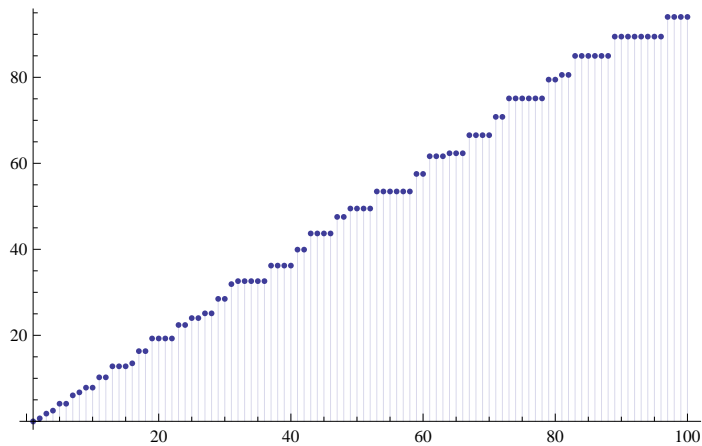
```
N[LL[103]]
```

```
103.29516073442828`
```

```
LLA[n_, a_] := LL[n, a] / a
```

```
103.295
```

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



```
MM[n_, a_] := Sum[a (MangoldtLambda[j] + MM[n / j, a]), {j, 2, n}]
```

```
N[MM[100, 1]]
```

```
-29.2869
```

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

