```
Sum[ n / (a b) - b, {a, 2, Floor[n^(1 / 3)]}, {b, a + 1, Floor[(n / a) ^1 / 2]}]
```

$Aborted

```
FF[n_] := Sum[ Floor[n / (a b)] - b, {a, 2, Floor[n^(1 / 3)]}, {b, a + 1, Floor[(n / a) ^(1 / 2)]}]
```

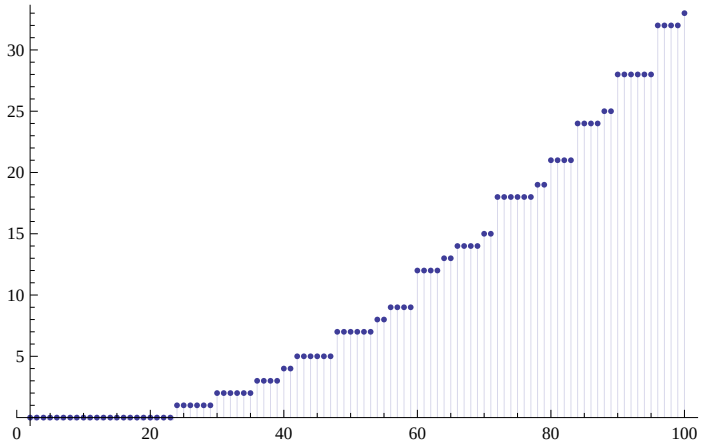
```
FF[80]
```

21

-213

-213

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

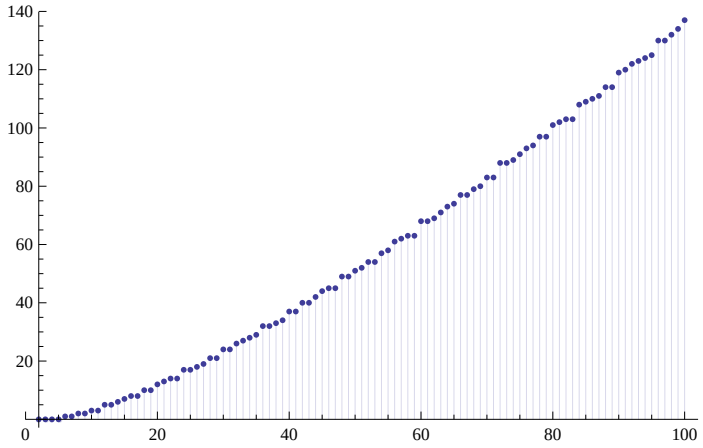



```
GG[n_] := Sum[ Floor[n / m] - m, {m, 2, Floor[n^(1 / 2)]}]
```

```
GG[103]
```

140

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




```
FF[n]
```

$$\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]} \left(-b + \text{Floor}\left[\frac{n}{a\,b}\right]\right)$$

$$\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]} (-b) + \sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]} \left(\text{Floor}\left[\frac{n}{a\,b}\right]\right)$$

$Aborted

$$\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]} (-b)$$

$Aborted

$$\sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]} (-b)$$

$$\text{Expand}\left[\frac{1}{2}\left(a-\text{Floor}\left[\sqrt{\frac{n}{a}}\right]\right)\left(1+a+\text{Floor}\left[\sqrt{\frac{n}{a}}\right]\right)\right]$$

$$\frac{a}{2}+\frac{a^2}{2}-\frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]-\frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2$$

$$\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{a}{2}+\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{a^2}{2}-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2$$

$$\frac{1}{4}\left(-2+\text{Floor}\left[n^{1/3}\right]+\text{Floor}\left[n^{1/3}\right]^2\right)+\frac{1}{12}\left(-6+\text{Floor}\left[n^{1/3}\right]+3\,\text{Floor}\left[n^{1/3}\right]^2+2\,\text{Floor}\left[n^{1/3}\right]^3\right)-$$
$$\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2$$

$$\text{FullSimplify}\Big[\frac{1}{4}\left(-2+\text{Floor}\left[n^{1/3}\right]+\text{Floor}\left[n^{1/3}\right]^2\right)+\frac{1}{12}\left(-6+\text{Floor}\left[n^{1/3}\right]+3\,\text{Floor}\left[n^{1/3}\right]^2+2\,\text{Floor}\left[n^{1/3}\right]^3\right)-$$
$$\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2\Big]$$

$$\text{Expand}\Big[\frac{1}{6}\Big(\text{Floor}\left[n^{1/3}\right]\left(1+\text{Floor}\left[n^{1/3}\right]\right)\left(2+\text{Floor}\left[n^{1/3}\right]\right)-$$
$$6\left(1+\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]+\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2\right)\Big)\Big]$$

$$-1+\frac{1}{3}\text{Floor}\left[n^{1/3}\right]+\frac{1}{2}\text{Floor}\left[n^{1/3}\right]^2+\frac{1}{6}\text{Floor}\left[n^{1/3}\right]^3-$$
$$\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2$$

$$\text{F1}[n\_] := \sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]} \sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]} (-b)$$

```
F2[n_] := -1 + 1/3 Floor[n^(1/3)] + 1/2 Floor[n^(1/3)]^2 +
  1/6 Floor[n^(1/3)]^3 - Sum[1/2 Floor[Sqrt[n/a]], {a, 2, Floor[n^(1/3)]}] - Sum[1/2 Floor[Sqrt[n/a]]^2, {a, 2, Floor[n^(1/3)]}]
```

```
F1[1000]
```

```
-750
```

```
F2[1000]
```

```
-750
```

```
F3[n_] := -1 + 1/3 Floor[n^(1/3)] + 1/2 Floor[n^(1/3)]^2 + 1/6 Floor[n^(1/3)]^3 -
  Sum[1/2 Floor[Sqrt[n/a]], {a, 2, Floor[n^(1/3)]}] - Sum[1/2 Floor[Sqrt[n/a]]^2, {a, 2, Floor[n^(1/3)]}] + Sum[Sum[Floor[n/(a b)], {b, 1 + a, Floor[Sqrt[n/a]]}], {a, 2, Floor[n^(1/3)]}]
```

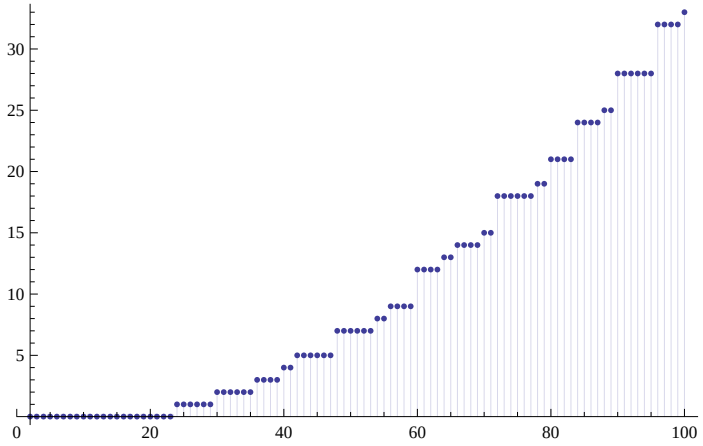
```
F3[100]
```

```
33
```

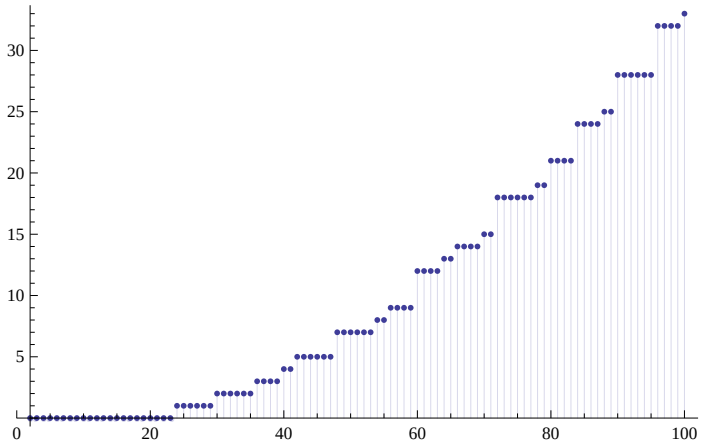
```
FF[100]
```

```
33
```

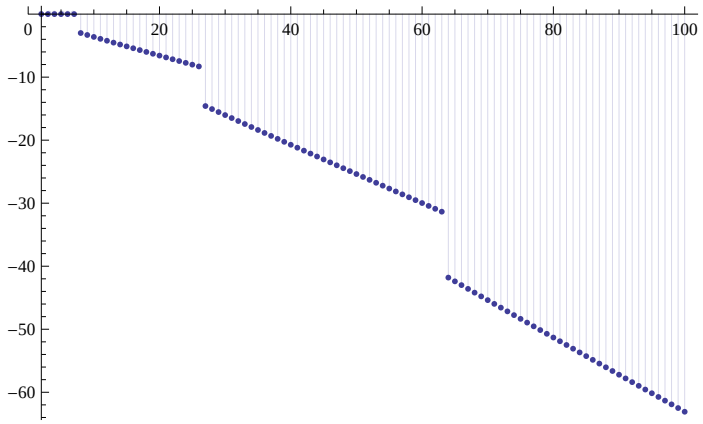
```
DiscretePlot[ FF[n], {n, 2, 100}]
```



```
DiscretePlot[ F3[n], {n, 2, 100}]
```



$$\text{DiscretePlot}\left[-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\frac{1}{2}\sqrt{\frac{n}{a}}-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\frac{1}{2}\sqrt{\frac{n}{a}}^{2},\{n,2,100\}\right]$$



$$\text{FullSimplify}\left[-1+\frac{1}{3}\text{Floor}\left[n^{1/3}\right]+\frac{1}{2}\text{Floor}\left[n^{1/3}\right]^2+\frac{1}{6}\text{Floor}\left[n^{1/3}\right]^3-\right.$$

$$\left.\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2+\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]}\left(\text{Floor}\left[\frac{n}{a\,b}\right]\right)\right]$$

$$\frac{1}{6}\left(\text{Floor}\left[n^{1/3}\right]\left(1+\text{Floor}\left[n^{1/3}\right]\right)\left(2+\text{Floor}\left[n^{1/3}\right]\right)-\right.$$

$$\left.6\left(1+\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]+\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\frac{1}{2}\text{Floor}\left[\sqrt{\frac{n}{a}}\right]^2-\sum_{a=2}^{\text{Floor}\left[n^{1/3}\right]}\sum_{b=1+a}^{\text{Floor}\left[\sqrt{\frac{n}{a}}\right]}\text{Floor}\left[\frac{n}{a\,b}\right]\right)\right)$$