

## 7340 Sum of MSLCM

A positive integer  $N$  can be the **LCM** (Least Common Multiple) of different set of numbers. For example,  $LCM(6, 24) = 24$ ,  $LCM(12, 8) = 24$ ,  $LCM(1, 2, 3, 4, 8) = 24$ , etc. For a given number  $N$ , maximum sum LCM indicates the set of numbers whose LCM is  $N$  and summation is maximum. Let,  $MSLCM(N)$  denote this maximum sum of numbers. Given the value of  $N$  you will have to find the value:

$$\sum_{i=2}^N MSLCM(i)$$

Obviously, in a set the same value never comes twice.

### Input

Input file contains at most 200 lines. Each line contains a positive integer which denotes the value of  $N$  ( $1 < N < 20000001$ ). Input is terminated by a line containing a single zero, which should not be processed.

### Output

For each positive number  $N$  in the input, produce one line of output. This line contains an integer which denotes the value  $\sum_{i=2}^N MSLCM(i)$

### Sample Input

```
10
1000
0
```

### Sample Output

```
86
823080
```