

Super Factor Sum

Given a positive integer $K > 2$, with prime factorization:

$$K = p_1^{a_1} * p_2^{a_2} \dots * p_n^{a_n}$$

Compute the following:

$$S = a_1 * p_1 + a_2 * p_2 \dots + a_n * p_n.$$

Input

A list of <100 integers, one on each line, all less than $2 * 10^{19}$.

Output

For each integer compute the super factor sum and output it on a single line.

Example

Input:

6
7

Output:

5
7