Toggle Light Switches

Timelimit: 2 sec

Problem description

You have n toggle switches $s_1, \ldots, s_n$, which are initially switched off.

Persons $p_1, \ldots, p_n$ arrive and person p_k toggles every kth switch (off to on, on to off). For example p_3 toggles $s_3, s_6, s_9, \ldots$.

At the end there are $f(n)$ switches in the *on* position.

Your task is to write a program that computes $f(n)$.

Watch out: The numbers can be very big!

Input

A number t ($1 \leq t \leq 20$) followed by n lines containing numbers $n_1, \ldots, n_t$.

It is guaranteed that $1 \leq n_i \leq 10^{18}$ for all i.

Output

t lines containing the numbers $f(n_1), \ldots, f(n_t)$.

Sample input/output

Input	Output
3 2 4 8	1 2 2