Problem A. Pot!!

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Little Q is very sleepy, and he really needs some ~~impenetrable hard problems~~ coffee to make him awake. At this time, Little L brings a pot to Little Q, and he states the pot as follows.

For a prime number p, if $p^m|n$ and $p^{m+1} \nmid n$, we say $\mathrm{pot}_p(n) = m$.

The pot is very special that it can make everyone awake immediately.

Now Little L provides n $(1 \le n \le 10^5)$ integers $a_1, a_2, \cdots, a_n$ to Little Q, each of which is 1 initially. After that, Little L shows 2 types of queries:

- `MULTIPLY l r x` : For every $i \in [l, r]$ $(1 \le l \le r \le n)$, multiply a_i by x $(2 \le x \le 10)$.
- `MAX l r` : Calculate the value of

$$\max_{l \le i \le r} \left\{ \max_{p|a_i} \left\{ \mathrm{pot}_p(a_i) \right\} \right\} \ (1 \le l \le r \le n),$$

  where p is prime.

Now you need to perform q $(1 \le q \le 10^5)$ queries of these two types of queries described above.

If you perform a "`MULTIPLY`" query, you don't need to output anything.

If you perform a "`MAX`" query, you need to output a line like "`ANSWER y`", where y the value you've calculated.

Input

The first line contains two integers n $(1 \le n \le 10^5)$ and q $(1 \le q \le 10^5)$, the number of integers and the number of queries.

Each of the next q lines contains one type of query described above.

Output

For each "`MAX`" query, output one line in the format of "`ANSWER y`", where y the value you have calculated.

Example

standard input	standard output
5 6 MULTIPLY 3 5 2 MULTIPLY 2 5 3 MAX 1 5 MULTIPLY 1 4 2 MULTIPLY 2 5 5 MAX 3 5	ANSWER 1 ANSWER 2

Note

If m and n are non-zero integers, or more generally, non-zero elements of an integral domain, it is said that m divides n if there exists an integer k, or an element k of the integral domain, such that $m \times k = n$, and this is written as $m \mid n$.