Mock CCC '19 Contest 1 S4 - Pusheen Plays Neko Atsume

Time limit: 0.6s   **Memory limit:** 1G
Java: 1.0s

Pusheen is playing Neko Atsume! She has a lot of toys and has laid them out to maximize her fish income. She wants to know how efficient her layout will be though.

After doing a lot of critical thinking and real-time programming, Pusheen has boiled down the fish income in terms of a single variable - the *beauty* of the arrangement of toys. She thus defines $f(x)$ to be the fish income given that her layout has beauty x. After some more computation, Pusheen has realized that for all $x \leq 0$, $f(x) = 1$. Otherwise, $f(x) = f\left(\left\lfloor \frac{x}{a} - b \right\rfloor\right) + f\left(\left\lfloor \frac{x}{c} - d \right\rfloor\right)$.

Pusheen has Q layouts, layout i having beauty x_i. Compute $f(x_i)$ for many values of x_i.

Constraints

$1 \leq x_i \leq 10^9$

$2 \leq a, c \leq 10^9$

$0 \leq b, d \leq 10^9$

$1 \leq Q \leq 10^5$

Input Specification

The first line contains five space-separated integers, a, b, c, d, and Q.

The next Q lines each contain a single positive integer, x_i.

Output Specification

Output Q lines, the $f(x_i)$ values in order.

Sample Input

```
2 0 2 0 3
1
2
3
```

Sample Output

2
4
4