

Ada and Diary

Ada the Ladybug's crush Bumblebee Blazewan has a secret diary. Ada wants to read it to see, whether he loves her too. Sadly, the diary is locked with some very strong cipher so she can't read it.

She asked you for help. Unfortunately, you are not able to break through. Yet you observed, that the key generated in the cipher is generated in following way $X_{i+1}=(aX_i+b) \bmod (10^{11}+3)$. You was able to find out first six X_i 's. Predicting next will help you to get through - can you do it?

Input

There will be no more than 10^5 test-cases.

Each test-case consists of line containing 6 integers $0 \leq X_i < 10^{11}+3$ ($1 \leq i \leq 6$)

Output

For each test-case print X_7 (modulo 100000000003).

Example Input

```
2 10 34 106 322 970
2 4 4 4 4 4
2 11 47 191 767 3071
0 0 0 0 0 0
2 8 32 128 512 2048
```

Example Output

```
2914
4
12287
0
8192
```

Possible setting

```
a=3, b=4, X1=2
a=0, b=4, X1=2
a=4, b=3, X1=2
a=2, b=0, X1=0
a=4, b=0, X1=2
```