# Dinostratus Matrices

Let's call a matrix *A[3 x 3]* Dinostratus if all its nine elements are different positive integer numbers and each its element $a_{i,j}$ (where $1 \le i,j \le 3$) is a multiple of its neighbors $a_{i-1,j}$, $a_{i-1,j-1}$ and $a_{i,j-1}$ (if they exist). In other words the following conditions hold:

- $a_{i,j} = X \cdot a_{i-1,j}$ for some positive integer $X$ (if $i \ge 2$)
- $a_{i,j} = Y \cdot a_{i,j-1}$ for some positive integer $Y$ (if $j \ge 2$)
- $a_{i,j} = Z \cdot a_{i-1,j-1}$ for some positive integer $Z$ (if $i,j \ge 2$)

For example the matrices

| | | |
|---|---|---|
| 1 | 3 | 9 |
| 2 | 6 | 18 |
| 4 | 12 | 36 |

| | | |
|---|---|---|
| 3 | 18 | 198 |
| 21 | 126 | 4158 |
| 147 | 882 | 29106 |

| | | |
|---|---|---|
| 10 | 100 | 4000 |
| 50 | 1000 | 20000 |
| 10000 | 100000 | 1000000 |

are Dinostratus. And the following matrices are not:

| | | |
|---|---|---|
| 1 | 3 | 9 |
| 2 | 6 | 18 |
| 4 | 12 | 54 |

| | | |
|---|---|---|
| 1 | 2 | 4 |
| 2 | 4 | 8 |
| 4 | 8 | 16 |

| | | |
|---|---|---|
| 36 | 12 | 4 |
| 18 | 6 | 2 |
| 9 | 3 | 1 |

Let's define the element $a_{3,3}$ of a Dinostratus matrix *A[3 x 3]* as a **base number**. Given a base number, find out how many different Dinostratus matices exist. Two matrices *A* and *B* are different if there are such indexes *i*, *j* that $a_{i,j} \ne b_{i,j}$.

## Input

Input file consists of several test cases. Input file starts with a line containing an integer $T$ ($T \le 500$), which is the number of test cases. The next $T$ lines constain one base number $N$ ($1 \le N \le 1000000$).

## Output

For each test case output a single line containing the number of different Dinostratus matrices corresponding to the base number. It is guaranteed that the answer is less than $2^{63}$.

## Example

**Input:**
7
1
10

100
1000
10000
100000
1000000

**Output:**
0
0
2
2382
257110
7475718
106889830

## Note

You can try the problem DINONUM first.