# H • Non-divisible 2-3 Power Sums

Every positive integer ***N*** can be written in at least one way as a sum of terms of the form $(2^a)(3^b)$ where no term in the sum exactly divides any other term in the sum. For example:

$$1 = (2^0)(3^0)$$
$$7 = (2^2)(3^0) + (2^0)(3^1)$$
$$31 = (2^4)(3^0) + (2^0)(3^2) + (2^1)(3^1) = (2^2) + (3^3)$$

Note from the example of 31 that the representation is not unique.

Write a program which takes as input a positive integer ***N*** and outputs a representation of ***N*** as a sum of terms of the form $(2^a)(3^b)$.

## Input

The first line of input contains a single integer **C**, ($1 \le C \le 1000$) which is the number of datasets that follow.

Each dataset consists of a single line of input containing a single integer **N**, ($1 \le N < 2^{31}$), which is the number to be represented as a sum of terms of the form $(2^a)(3^b)$.

## Output

For each dataset, the output will be a single line consisting of: The dataset number, a single space, the number of terms in your sum as a decimal integer followed by a single space followed by representations of the terms in the form `[<2 exponent>,<3 exponent>]` with terms separated by a single space. `<2 exponent>` is the power of 2 in the term and `<3 exponent>` is the power of 3 in the term.

| Sample Input | Sample Output |
|---|---|
| 6 | 1 1 [0,0] |
| 1 | 2 2 [2,0] [0,1] |
| 7 | 3 3 [4,0] [0,2] [1,1] |
| 31 | 4 1 [5,5] |
| 7776 | 5 1 [0,12] |
| 531441 | 6 8 [3,13] [4,12] [2,15] [7,8] [9,6] [0,16] [10,5] [15,2] |
| 123456789 | |