Problem Present

Input file	stdin
Output file	stdout

Laika has decided to make a gift for her good friend Azusa, the witch of the highlands. For reasons we do not know, this gift will be a finite set of positive integers. If that were all, it would be a simple matter to choose a gift, but several factors complicate this.

First of all, Laika's rival, Flatorte, has mysterious magical powers: given two integers x and y she can create the greatest common divisor of x and y (i.e. $\gcd(x, y)$). If Laika gave a gift that Flatorte could immediately add to (i.e. if she gifted a set A for which $x, y \in A$, yet $\gcd(x, y) \notin A$), then Flatorte would immediately tease her rival. Therefore, Laika's gift must not be improvable using Flatorte's powers: if she gifts A then for all $x, y \in A$ it must be the case that $\gcd(x, y) \in A$.

Secondly, Laika wants the gift to have a certain special significance. It has been K days since she met Azusa, and she wants the gift to show this fact. Therefore, she has arranged all of the sets that satisfy the condition explained above in *Laikan* order (explained below), getting an infinite sequence of finite sets $S_0, S_1, \ldots$. She wants to select and gift set S_K. Can you help her do so?

Laikan order. Take two sets A and B. Then, A comes before B in Laikan order if and only if $\max A < \max B$, or $\max A = \max B$ and $A \setminus \{\max A\}$ comes before $B \setminus \{\max B\}$ in Laikan order. For the purposes of this definition, take $\max \emptyset = -\infty$. Note that this is always well defined for finite sets of positive integers.

Input data

The first line of the input contains a single integer T, the number of test cases in this file. The next T lines each contain a value of K for which we want to know S_K.

Output data

For each of the T values of K, output the set S_K. To output a set, output a line that begins with the number of elements it has, and the continues with its elements, in increasing order.

Restrictions

- $1 \le T \le 5$

#	Points	Restrictions
1	8	$0 \le K \le 100$
2	21	$0 \le K \le 1\,000\,000$
3	41	$0 \le K \le 500\,000\,000$
4	14	$0 \le K \le 1\,000\,000\,000$
5	16	$0 \le K \le 1\,500\,000\,000$

Examples

Input file	Output file
5 0 1 2 3 4	0 1 1 1 2 2 1 2 1 3
4 5 6 100 1000	2 1 3 3 1 2 3 5 1 2 3 7 8 7 1 2 3 5 10 11 12

Explanations

Note that $S_0 = \emptyset, S_1 = \{1\}, S_2 = \{2\}, S_3 = \{1,2\}, S_4 = \{3\}, S_5 = \{1,3\}, S_6 = \{1,2,3\}, S_{100} = \{1,2,3,7,8\}, S_{1000} = \{1,2,3,5,10,11,12\}$. These are precisely the sets outputted in the examples (together with their sizes). Observe that $S_6 \neq \{2,3\}$ — this is because $2, 3 \in \{2,3\}$, yet $\gcd(2,3) = 1 \notin \{2,3\}$.