Viral Video

Problem Statement:

YouTube Rewind is a video released annually by YouTube featuring YouTubers from the most watched videos on YouTube. Although most of those who get featured are from the list of the top 100 YouTubers in the world, at least one new YouTuber from outside that list also gets featured in that video every year.
Since it's inception in 2005, YouTube has grown in both the amount of content uploaded and the amount of time people spend watching it's videos. 300 hours of video are uploaded to YouTube every minute and the most subscribed channels have hundreds of thousands of subscribers. In such a scenario, it's a huge challenge for a new YouTuber to release a viral video and a lot of research has been done in this subject.
The research has provided us with some really interesting insights- like every year, the number of viral videos released by any channel in the top 100 list is always a prime number. The research also suggests that to get featured in the YouTube Rewind video, a new YouTuber will have to release a certain number of quality videos, one out of which will go viral.
If the top three YouTubers in the top 100 list released x1, x2 and x3 videos respectively, the new channel will have to release F(k) quality videos to make it to Youtube rewind. F(k) is the k th number in the series of all numbers (arranged in ascending order) which cannot be divided by any prime number other than 1, x1, x2 and x3.

Input Format:

First line of the input contains no of test cases **T**, the **T** test cases follow.
Each test case consist of 4 space separated integers **x1, x2, x3 and k.**

Output Format:

For each test case print the value of F(k) and all the prime numbers that can divide F(k)- in descending order, each separated by a space. Print the output for each test case on a separate line.

Constraints:

- 1<=T<=100
- 1<=x1<=200
- 1<=x2<=200
- 1<=x3<=200
- 1<=k<=500

Sample Input:

2
2 3 5 9

5 7 13 6

Sample Output:

12 3 2

49 7