

Problem C. Cables

Source file name: C.c, C.cpp, C.java, C.py2, C.py3
Input: Standard
Output: Standard
Author(s):

Mexico regional programming contest are near, yes, they will be in like 6 months but with all the planning required to have success in the event 6 months is too little time.

The Mexico regional finals committee have decided they need to work in order to organize the most fair regional contest ever. It was decided that in order to have the most fair contest they need not to provide only computers with the same operative system and software and with exactly the same hardware but that it is also required that the connection to the judging system is exactly the same.

In order to have exactly the same connection to the judging system each of the K computers that contestants will be using during the contest will be connected directly with a cable to the central hub where the judging system is connected, also, to make sure everything is exactly the same on contestant computers the cable to each computer should have the same length.

To buy network cables, the committee has contacted a local network solutions provider with a request to sell for them a specified number of cables with equal lengths. The provider does not have available the required amount of cables but they have a stock of N cables with different sizes and they can cut these cables if they know the length of the pieces they must cut. After the committee heard this, some thoughts came to their mind about the size of the cable, it would be appropriate that the cable size is as long as possible, in this way they can sit contestants as far from each other as possible, making the contest even more fair.

As the committee is too busy solving more issues with the problem set, you are here to help them by writing a program that will determine the maximal possible length of a cable that can be cut from the cables in the providers stock, to get the required amount of cables.

Input

The input consists of several test cases. The first line of input contains a number T the number of test cases that follows. The following T test cases are as follow: The first line of each test case contains two integer numbers N and K , separated by a space. N is the number of cables in the providers stock, and K is the number of requested cables. The next N lines with one number per line, that specify the length of each cable in the stock in centimeters.

- $1 \leq T \leq 20$
- $1 \leq N \leq 10^4$
- $1 \leq K \leq 10^4$
- All cables in the stock are at least 1 centimeter and at most 10^9 centimeters in length.

Output

For each testcase write to the output the maximal length (in centimeters) of the pieces that network provider may cut from the cables in the stock to get the requested number of pieces.

If it is not possible to cut the requested number of pieces each one being at least one centimeter long, then the output must contain the single number "0" (without quotes).

Example

Input	Output
1 4 11 80 70 40 50	20