

In the last winter the whole Bangladesh was suffering from the attack of mosquitos. They were huge and they were big. Unfortunately the honourable Mayor of Dhaka was calimed for this reason and he had a notice for a “show cause”. He was at a loss what to do and began to search for the orders recently he had given concerning mosquitos. Searching and searching all the mammoth data’s on computers and documents is a harculean task. At last he found an order on a mosquito research named “MOSQUITO KILLER MOSQUITOS” which was proposed by a project of Science Laboratory of Bangladesh. This was a harmless project which states that the project is on procreation of mosquitos from which easy ways can be found to control the reproduction of mosquitos.

In the description part there was a statement that they were going to produce such mosquitos which will be the killer of normal mosquitos. This kind of mosquitos will grow rapidly and spread in a completely structured way. Moreover these mosquitos will have common gender , thus creating a new way of generation. Any two of them will be able to regenerate new mosquitos among themselves. In one day they will meet just once with every mosquito and lay only one egg for each meet. The eggs will become rapidly reproducable mosquitos on the next day. In each weekday the number equal to the square root (expressed in integer) of them will remain in the pond and others will go to other ponds to cover corresponding areas. They will not meet and lay eggs that day. These mosquitos will leave on garbaze, destructing the unwanted garbaze. Thus detroying harmful moquitos and garbaze of the whole Bangladesh (as well as the whole Universe).

After these statements there was remark saying that “This project on MOSQUITO KILLER MOSQUITOS seems to bring new horizon to science. So this project is granted giving all kinds of facilites available.” and signed “The Mayor of Dhaka”.

Reading all these the Mayor took an inquiry to the database of current project on science and found the project of the “MOSQUITO KILLER MOSQUITOS” was falied due to the fact that they were able to produce such big mosquitos but failed to make garbaze as their food. This project was stopped and the generated mosquitos was all destroyed. A few of them was kept in the lab for future research. This made Mayor think. He ordered his detectives to report on where these mosquitos were. In that evening the detectives reported that some of those mosquitos were stolen by someone from the lab.

Now the Mayor understood the reason for so many mosquitos. Also understood the reason for the “Dengu Fever” caused in Dhaka few mounths ago. And he got paniced how bad the situation can be! He begun to take necessary steps against this situation. But before he could take any step he wanted to know how many mosquitos were out there? He e-mailed you (The responsible programmer for The Peoples Republic of Bangladesh) to write a program for him and help in this great danger of Bangladesh as well as the World.

Input

The input will consist on a set of lines. Each line will contain two integers. First one represents the number of mosquitos in a pond at the very begining. The second integer represents the number of days have passed after the starting day. You may assume the input will fit in a 32 bit integer. A negative number will indicate the end of input.

Output

For each set of input output the integer representing the number of mosquitos in that pond in that day in the format as shown in the sample output below. Output a single line for each line of input.

Sample Input

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4 1
-1 -1
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Sample Output

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Number of mosquitos in the pond at the end of 1’st day is 10.
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