Computer University (Magway)
Programming Contest

Problem Set

(Practice Round)

Please check you have 3 problems.

Contest Problem Set

Problem A	Pronic Numbers	1 page
Problem B	Removing Duplicate Characters	1 page
Problem C	Area	1 page

Note. The input and output for all problems are standard input and output.

January 2, 2017

Problem A: Pronic Numbers

In mathematics, a pronic number, oblong number, rectangular number or heteromecicnumber, is a number which is the product of two consecutive integers, that is n*(n+1). Then, the pronic numbers were studied as figurate numbers. For example, the pronic numbers are 0 from (0*1), 2 from (1*2) , 6 from (2*3) and so on.
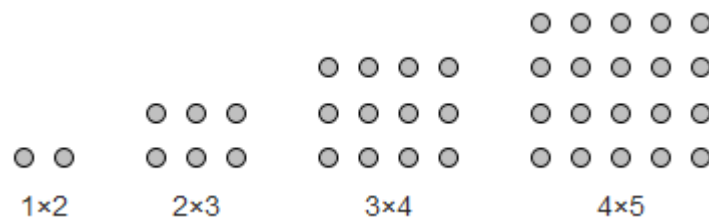
1×2　　　2×3　　　3×4　　　　4×5

Input

The first line of the input has a single positive integer number, T, $1 \le T \le 100$, which is the number of test cases. The next T lines will consists of two integers, L and U, $0 \le L \le U \le 5000$).

Output

For each data set, print the number of pronic numbers between L and U, inclusive.

Sample Input	Sample Output
3 0 10 31 100 550 800	3 4 5

Problem B: Removing Duplicate Characters

For this problem, you will write a program that takes a string of characters (without white space), **S**, and remove the duplicate characters present in it, and creates a new string, **S1**.

In the following example, there is a string of characters, "xyz" from "xyzxyzxyz". And also"javprogming" from "javaprogramming".

Input

The first line of the input contains a single line of input string, **S**. The length of string **S** will always be at least one and no more than 20 characters. A single '#' on a line by itself indicates the end of input.

Output

For each test case, there is one line of output. See the samples for the exact format of output.

Sample Input	Sample Output
banana mississippi chocolate #	ban misp cholate

Problem C:Area

This problem has the following description: Given the three sides of a triangle, calculate its area. The algorithm description in informal pseudo-code notation is:

1. Read the value of side x from the input device (keyboard).
2. Read the value of side y from the input device (keyboard).
3. Read the value of side z from the input device (keyboard).
4. Compute $s = 0.5(x + y + z)$, as an intermediate result.
5. Compute $area = \sqrt{s(s - x)(s - y)(s - z)}$
6. Print the value of *area* to the output device (video screen).

Input

The first line of the input has a single positive integer number, T, 1<=T<=100, which is the number of data sets. Each line consists of integers x, y and z in the range 1 to 100 inclusive.

Output

The output is the area of the given inputs.

Sample Input	Sample Output
3 3 4 5 7 8 9 10 11 12	6.0 26.832815729997478 43.8178060041329