



UNIVERSITY
OF MALAYA



P E K O M

PERSATUAN KOMPUTER UNIVERSITI MALAYA

PROGRAMMING LEAGUE 2016
FINAL

CLOSED CATEGORY

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Instructions:

1. The contest consists **6 questions**.
2. You are given **3 hours** to answer the questions.
3. You are **not** expected to answer all the questions.
4. You are **not allowed** to use any electronic devices throughout the contest except your calculator.
5. You are **allowed** to use physical references throughout the contest such as printed materials/ reference books.
6. Rankings will be based on the number of questions solved, number of attempts to solve a question and the time taken for a question to be solved.
7. Plan your strategy wisely.

Questions:

Question	Title	Contributor/Source
A	Sum It Up!	Khooi Xin Zhe
B	Right Triangle	ACM ICPC MY 2011 (A)
C	Pattern, Pattern	Khooi Xin Zhe
D	FizzBuzz V2.0	IIUM Code Knights
E	Keep It Secret & Safe	ACM ICPC MY 2014 (A)
F	Currency Problem	Khooi Xin Zhe/ Ong Seow Sze

	<h1>SUM IT UP!</h1>
Input	Standard Input
Output	Standard Output
Time Limit	3 seconds

Problem Description

Johnny was born on the 3rd of March, Year 3333, he has 3 brothers and 3 sisters.

The number ‘3’ is definitely Johnny’s lucky number!

Hence, everything that he possesses, it would either contain the number 3, or the number is a factor of 3. For example, his phone number is 333 666 999 and his wallet will be carrying the exact amount of RM333 before going out to meet his friends.

One day, Johnny plans to buy a lottery ticket. However he is too lazy to check whether the number that he wants to buy is a factor of 3. Instead of checking whether the number is a factor of 3, he has decided to develop a program that sums up all the multiples of 3 (the sum is still a factor of 3 as far as Johnny knows, or is Johnny wrong?) **within** a given number.

Your task is to help Johnny to write the program.

Input

The input consists of several test cases.

Everyline of input consists of a positive integer N ($N \leq 100,000$) which is the number given by Johnny.

The program terminates when the input is '#'.

Output

For each case, output a line in the format "Case x : " where x is the case number (starting from 1), followed by the sum of the multiple of 3 that you get.

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Sample Input Output

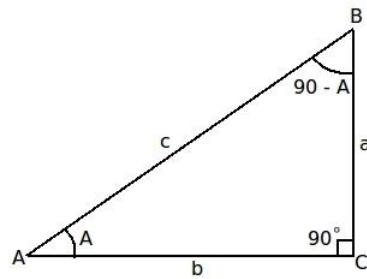
Sample Input	Sample Output
1000 99 #	Case 1: 166833 Case 2: 1584

B	<h1>RIGHT TRIANGLE</h1>
Input	Standard Input
Output	Standard Output
Time Limit	3 seconds

Problem Description

Johnny is learning about the properties of triangles. Today the teacher just taught him about right triangles or right-angled triangles.

A right-angled triangle is a triangle in which one angle is a right angle (that is, at 90 degrees angle). The largest side of such a triangle is called the hypotenuse. The relation between the sides of the triangle is $c^2=a^2 + b^2$, where c is the hypotenuse.



Given 3 sides of a triangle, your task is to help Johnny to determine whether the given triangle is a right triangle or not.

Input

The first line has a positive integer T , $T \leq 100000$, denoting the number of test cases. This is followed by each test case per line.

Each test case consists of a line containing 3 integers a , b and c denoting the sides of a triangle.

All of these sides will be between 1 and 100, inclusive. The sides a , b and c can be given in any order.

Output

For each test case, the output contains a line in the format Case #x: M, where x is the case number (starting from 1) and M is “YES” when the given triangle is a right triangle or “NO” otherwise. Note that the quotes are not required to be outputted.

Sample Input Output

Sample Input	Sample Output
10 20 16 12 5 3 4 15 12 9 12 5 13 12 13 5 28 82 46 43 96 92 3 4 5 13 5 12 6 10 8	Case #1: YES Case #2: YES Case #3: YES Case #4: YES Case #5: YES Case #6: NO Case #7: NO Case #8: YES Case #9: YES Case #10: YES

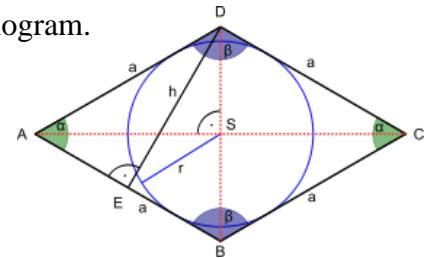
C	<h1>PATTERN, PATTERN!</h1>
Input	Standard Input
Output	Standard Output
Time Limit	3 seconds

Problem Description

A diamond is known as a rhombus, every rhombus are a parallelogram.

As a designer, Johnny always uses this shape in his designs.

Johnny needs your help in coming with a program that automatically generates the size of the diamond that he needs.



Input

The input consists of several test cases.

Everyline of input consists of a positive integer N ($N \leq 20$, where N is an **odd** number) which indicates the length of the horizontal diagonal of the diamond.

The program terminates when the input is 0.

Output

For each set, output a line in the format "Diamond #x:" where x is the diamond shape number (starting from 1), followed several lines that displays the diamond shape filled with the asterisk symbol '*'.

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Sample Input Output

Sample Input	Sample Output
3 5 0	Diamond #1: * *** * Diamond #2: * *** ***** *** *

D	<h1>FIZZ BUZZ V2.0</h1>
Input	Standard Input
Output	Standard Output
Time Limit	3 seconds

Problem Description

FizzBuzz is an interview question designed to filter out programmers who can't program. The problem is simple, the interviewee is required to make a program which output 1 to 100. But if the number is divisible by 3, print "Fizz" instead. If the number is divisible by 5, print "Buzz" instead. If the number is divisible by both 3 and 5, print "FizzBuzz" instead.

You are given 4 integer a, b, c and d. You are required to print integers from a to b. If the integer is divisible by c, print "Fizz". If the integer is divisible by d, print "Buzz". If the integer is divisible by c and d, print "FizzBuzz". Note that b can be lower than a and in that case, the number should be printed in decreasing order.

Input

The first line of input consists of a positive integer, N, ($N \leq 10$) which indicates the number of test cases available.

The input consists of a single line consisting of 4 integer a, b, c and d. (1 a; b; c; d 105)

Output

For each test cases, print out a line "**FizzBuzz #x:**" where x is the test case number starting from 1. Following that, print it its own line, integer from a to b. If the integer is divisible by c, print "Fizz". If the integer is divisible by d, print "Buzz". If the integer is divisible by both c and d, print "FizzBuzz".

Sample Input Output

Sample Input	Sample Output
2 9 16 3 5 1 5 2 4	FizzBuzz #1: Fizz Buzz 11 Fizz 13 14 FizzBuzz 16 FizzBuzz #2: 1 Fizz 3 FizzBuzz 5

<p>E</p>	<h1>KEEP IT SECRET & SAFE</h1>
<p>Input</p>	Standard Input
<p>Output</p>	Standard Output
<p>Time Limit</p>	3 seconds

Problem Description

Choosing the right password is something that some people find difficult. There are so many software applications that require password these days. Remembering all the chosen password can also be a real problem. Perhaps because of this a lot of people choose their password very badly, as long as they can remember.

A simple tip to choose a password is as follows:

- Use at least eight characters and keep it less than 15, because anything more than 15 character is difficult to remember

AND

- Use at least one character from both category below:
 - letters (A –Z, a –z)
 - digits (0 –9) or symbols (all printable symbol on a basic keyboard, not including space ')

Write a program that will determine whether a password is acceptable or not.

Input

First line of the input contains **T** the number of test cases ($1 \leq T \leq 100$). Each test case consists of a string **S** which represents a password. The maximum length of string **S** is 15 characters.

Output

For each test case, the output contains a line in the format Case #x: M, where x is the case number (starting from 1) and M is either "Acceptable" or "Not acceptable"

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Sample Input Output

Sample Input	Sample Output
5 ACMICPC'14 12345678 abc12+ success\$ 1Malaysia	Case #1: Acceptable Case #2: Not acceptable Case #3: Not acceptable Case #4: Acceptable Case #5: Acceptable

Closed Category

F	<h1>CURRENCY PROBLEM</h1>
Input	Standard Input
Output	Standard Output
Time Limit	3 seconds

Problem Description

After the third semester's final exam, Johnny was exhausted as he has decided to embark on an overseas trip to Bandung, Indonesia.

He went to a foreign exchange service provider and bought x Indonesian Rupiah. During his stay in Bandung, he spent most of his money to buy the delicious local delicacies and souvenirs for his friends. When he got back from Indonesia, he sold his remaining Indonesian Rupiah for y .

He wants to know the total amount in RM that he lost/ gained during the currency conversion process. Your task it to help him compute the result. The currency conversion can be done by using the formula $y = x / 1000 * \text{rate}$.

Input

The input consists of a few test cases. For each test cases, the first line of input is a positive integer ($1 \leq x \leq 100,000,000$) which indicates the amount of Indonesian Rupiah he bought. The following line of each test cases were the exchange rates in 4 decimal places, p and q when he bought and sold Indonesia Rupiah. The third line of input of each test cases is a positive integer M ($M \leq 100$) which indicates the number of expenses Johnny made in Bandung. For the following M lines, describing the expense in the format of "DESCRIPTION PRICE".

The program terminates when the input for the amount of Indonesian Rupiah is 0.

Output

For each test cases, output a line in the format "Case #a: RM" where a is the test case number (starting from 1), follow by the calculated lost/ gain rounded off to 2 decimal places in Ringgit Malaysia.

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Sample Input Output

Sample Input	Sample Output
1800000 0.3235 0.3250 4 MARTABAK_CHEESE 50000 MARTABAK_AYAM 30000 KEK_LAPIS 180000 LAUNDRY 7000 1200000 0.3333 0.3000 5 MARTABAK_CHEESE 100000 MARTABAK_BANANA 25000 SLIPPER 8500 INDOMIE_CHEESE 8500 DRAGONFRUIT_JUICE 10000 0	Case #1: RM2.30 Case #2: -RM34.90