Problem 1 – Enigma

You are given **n** lines of encrypted messages. The messages will contain ASCII characters. In each message, only the **Latin letters and special characters will be encrypted**. The numbers and whitespace will not be encrypted. Your task is to write a program to decrypt the messages. The formula for the decrypting each letter is **X = k + m**, where **X** is the ASCII code of the decrypted letter, **k** is the ASCII code of the encrypted character and **m** is the **integer half of the length** of the input line, **without the numbers and whitespace**. (Hint: length()/2)

Input

The input comes from the console. The first line holds the **count n**. After that there are **n lines** with the encrypted messages.

The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

Print at the console the decrypted messages, each on **separate line.**

Each message should hold the numbers, whitespace and decrypted letters. See the examples below.

Constraints

The **count n** will be an integer number in the range [1…50].
The input **lines length** will be an integer number in the range [1...35].
The input **lines** may hold **any ASCII character.**
Time limit: 0.2 sec. Memory limit: 16 MB.

Examples

Input	Output
1 Ie\jkd_ ^Wi =h[Wj I[Yh[j	SoftUni has Great Secret *The length without whitespaces is 21.* *Integer division 21/2 = 10.* *ASCII(I) = 73. 73 + 10 = 83. 83 = ASCII(S). .* *ASCII(e) = 101. 101 + 10 = 111. 111 = ASCII(o).*
Input	**Output**
3 Tbi`ljb rm rfc grkdib	Welcome to the jungle
Input	**Output**
1 P^ aZo^ 350 fbllbe^l	We have 350 missiles