1122 – Digit Count

Given a set of digits **S**, and an integer **n**, you have to find how many **n**-digit integers are there, which contain digits that belong to **S** and the difference between any two adjacent digits is not more than two.

Input

Input starts with an integer **T (≤ 300)**, denoting the number of test cases.

Each case contains two integers, **m (1 ≤ m < 10)** and **n (1 ≤ n ≤ 10)**. The next line will contain **m** integers **(from 1 to 9)** separated by spaces. These integers form the set **S** as described above. These integers will be distinct and given in ascending order.

Output

For each case, print the case number and the number of valid **n**-digit integers in a single line.

Sample Input	Output for Sample Input
3 3 2 1 3 6 3 2 1 2 3 3 3 1 4 6	Case 1: 5 Case 2: 9 Case 3: 9

Note

For the first case the valid integers are

11
13
31
33
66