

A: AdjacentBitCounts

For a string of n bits $x_1, x_2, x_3, \dots, x_n$, the *adjacent bit count* of the string ($AdjBC(x)$) is given by

$$x_1 * x_2 + x_2 * x_3 + x_3 * x_4 + \dots + x_{n-1} * x_n$$

which counts the number of times a 1 bit is adjacent to another 1 bit. For example:

$$AdjBC(011101101) = 3$$

$$AdjBC(111101101) = 4$$

$$AdjBC(010101010) = 0$$

Write a program which takes as input integers n and k and returns the number of bit strings x of n bits (out of 2^n) that satisfy $AdjBC(x) = k$. For example, for 5 bit strings, there are 6 ways of getting $AdjBC(x) = 2$:

11100, 01110, 00111, 10111, 11101, 11011

Input

The first line of input contains a single integer P , ($1 \leq P \leq 1000$), which is the number of data sets that follow. Each data set is a single line that contains the data set number, followed by a space, followed by a decimal integer giving the number (n) of bits in the bit strings, followed by a single space, followed by a decimal integer (k) giving the desired adjacent bit count. The number of bits (n) will not be greater than 100 and the parameters n and k will be chosen so that the result will fit in a signed 32-bit integer.

Output

For each data set there is one line of output. It contains the data set number followed by a single space, followed by the number of n -bit strings with adjacent bit count equal to k .

Sample Input

```
10
1 5 2
2 20 8
3 30 17
4 40 24
5 50 37
6 60 52
7 70 59
8 80 73
9 90 84
10 100 90
```

Sample Output

```
1 6
2 63426
3 1861225
4 168212501
5 44874764
6 160916
7 22937308
8 99167
9 15476
10 23076518
```