

6176 Faulhaber's Triangle

The sum of the m -th powers of the first n integers

$$S(n, m) = \sum_{j=1}^n j^m$$

can be written as a polynomial of degree $m + 1$ in n :

$$S(n, m) = \sum_{k=1}^{m+1} F(m, k) * n^k$$

For example:

$$S(n, 1) = (1 + \dots + n) = (1/2) * n^2 + (1/2) * n$$

$$S(n, 2) = (1 + \dots + n^2) = (1/3) * n^3 + (1/2) * n^2 + (1/6) * n$$

$$S(n, 3) = (1 + \dots + n^3) = (1/4) * n^4 + (1/2) * n^3 + (1/4) * n^2$$

$$S(n, 4) = (1 + \dots + n^4) = (1/5) * n^5 + (1/2) * n^4 + (1/3) * n^3 - (1/30) * n$$

The coefficients $F(m, k)$ of these formulas form *Faulhaber's Triangle*:

1							
1/2	1/2						
1/6	1/2	1/3					
0	1/4	1/2	1/4				
-1/30	0	1/3	1/2	1/5			
0	-1/12	0	5/12	1/2	1/6		
1/42	0	-1/6	0	1/2	1/2	1/7	

where rows m start with 0 (at the top) and columns k go from 1 to $m + 1$

Each row of *Faulhaber's Triangle* can be computed from the previous row by:

- a) The element in row i and column j ($j > 1$) is $(i/j) * (\text{the element above left})$; that is: $F(i, j) = (i/j) * F(i - 1, j - 1)$
- b) The first element in each row $F(i, 1)$ is chosen so the sum of the elements in the row is 1.

Write a program to find entries in *Faulhaber's Triangle* as decimal fractions in lowest terms .

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 should be processed identically and independently.

Each data set consists of a single line of input consisting of three space separated decimal integers. The first integer is the data set number. The second integer is row number m , and the third integer is the index k within the row of the entry for which you are to find $F(m, k)$, the *Faulhaber's Triangle* entry ($0 \leq m \leq 400, 1 \leq k \leq m + 1$).

Output

For each data set there is a single line of output. It contains the data set number, followed by a single space which is then followed by either the value if it is an integer OR by the numerator of the entry, a forward slash and the denominator of the entry.

Sample Input

```
4
1 4 1
2 4 3
3 86 79
4 400 401
```

Sample Output

```
1 -1/30
2 1/3
3 -22388337
4 1/401
```