B. Earn Max Pay Min

Time limited: 10 seconds

Problem Description

Two people P1 and P2 are playing a game. The game is done on a matrix M, with dimensions m x n.

At one go, P1 chooses an i between 0 and m-1 while P2 chooses a j between 0 and n-1. Interestingly, they both did not know the number the other had chosen …

After completing the selection, they inform their number to the other person. M [i] [j] is an element of the matrix determined by the indices that two players have chosen. If M [i] [j] is a negative number, P1 pays P2 an amount equal to the absolute value of M [i] [j]. However, if M [i] [j] is a positive number, P2 must pay P1 an amount equal to M [i] [j].

Given the matrix M and know that both players are absolutely smart, or calculate the average amount that P2 pays for an in-game turn.

Note: P1 plays to earn the most money, while P2 tries to pay the least money.

Input

The first line contains T, the number of tests.
In each test, the first line contains two integers m and n, representing the size of the matrix. Next are m lines, each containing n integers representing the elements of the matrix.
(1 <= m <= 3,1 <= n <= 5000, abs (M [i] [j]) <= 150000, T <= 15)

Output

Contains T lines, each containing a real number with exactly 3 decimal places, representing the average amount that P1 receives in one turn.

Example

3 1 1 -1 2 2 1 2 3 4 2 2 1 4 4 3	-1.000 3.000 3.250