

G A Very Long Hike

You are planning a hike in the Peneda-Gerês National Park in the north of Portugal. The park takes its name from two of its highest peaks: Peneda (1340 m) and Gerês (1545 m).

For this problem, the park is modelled as an infinite plane, where each position (x, y), with x, y being integers, has a specific altitude. The altitudes are defined by an $n \times n$ matrix h, which repeats periodically across the plane. Specifically, for any integers a, b and $0 \leq x, y < n$, the altitude at $(x + an, y + bn)$ is $h[x][y]$.

When you are at position (x, y), you can move to any of the four adjacent positions: $(x, y + 1)$, $(x + 1, y)$, $(x, y - 1)$, or $(x - 1, y)$. The time required to move between two adjacent positions is $1 + |\text{alt}_1 - \text{alt}_2|$, where alt_1 and alt_2 are the altitudes of the current and destination positions, respectively.

Initially, your position is $(0, 0)$. Compute the number of distinct positions you can reach within 10^{20} seconds. Your answer will be considered correct if its relative error is less than 10^{-6}.

Input

The first line contains an integer n $(2 \leq n \leq 20)$—the size of the matrix describing the altitudes.

The following n lines contain n integers each. The $(j+1)$-th number on the $(i+1)$-th of these lines is $h[i][j]$ $(0 \leq h[i][j] \leq 1545)$—the altitude of the position (i, j).

Output

Print the number of distinct positions you can reach within 10^{20} seconds. Your answer will be considered correct if its relative error is less than 10^{-6}.

Samples

Sample input 1	Sample output 1
2 3 3 3 3	2e+40

Explanation of sample 1.
Every position of the Peneda-Gerês National Park has an altitude of 3. Therefore, the time required to move between two adjacent positions is always equal to 1 second.

In this case, one can show that a position (x, y) is reachable within 10^{20} seconds if and only if $|x| + |y| \leq 10^{20}$. One can compute that there exist 20 000 000 000 000 000 000 200 000 000 000 000 000 001 reachable positions and this number is approximated by $2 \cdot 10^{40}$ with a relative error smaller than 10^{-6}. The sample output shows $2 \cdot 10^{40}$ as correct answer, but also the exact number of reachable positions would be a correct answer.

Sample input 2	Sample output 2
3 0 0 0 0 1545 0 0 0 0	2e+40

Explanation of sample 2.
Every position (x, y) of the Peneda-Gerês National Park with $x - 1$ and $y - 1$ divisible by 3 has an altitude of 1545, while all the other positions have an altitude of 0. For example, the time required to move between $(4, 10)$ and $(4, 9)$ is 1546, while the time required to move between $(3, 2)$ and $(4, 2)$ is 1.

The positions reachable in 2 seconds are all positions (x, y) with $|x|+|y| \leq 2$ apart from $(1, 1)$ (which is on the peak). One can compute that there exist 19 999 999 999 999 999 931 533 333 333 333 333 863 441 reachable positions in 10^{20} seconds and this number is approximated by $2 \cdot 10^{40}$ with a relative error smaller than 10^{-6}. The sample output shows $2 \cdot 10^{40}$ as correct answer, but also the exact number of reachable positions would be a correct answer.

Sample input 3	Sample output 3
4 0 1 2 3 5 6 7 4 10 11 8 9 15 12 13 14	1.524886878e+39