Starship

You are traveling by starship and at any time you are always moving in one of **6** directions: forwards, backwards, up, down, left, or right. In other words, during every second, one of the three coordinates of your position changes by exactly one unit. Let us suppose that you are at ($\mathbf{x}_1$, $\mathbf{y}_1$, $\mathbf{z}_1$) and you would like to reach ($\mathbf{x}_2$, $\mathbf{y}_2$, $\mathbf{z}_2$). Unfortunately, yours is only a first generation starship, which means that all movements are completely random, so at every second you will be moving with probability 1/6 forwards/backwards/up/down/left/right. Could you compute the probability that we will be at the destination in the **n-**th second?

Input

The first line contains integer **T**, representing the number of test cases. Each test case starts with a positive integer n, the next line gives the starting position of the starship, while the final one is the destination. It is known that: **T** < 30000, **0** < n <= 1000. The absolute value of the **x, y, z** coordinates are smaller than 10^6. There are **5** input sets for **10** points.

Output

T lines, and in the **i**-th line give the required probability for the **i**-th test case. Use **10** digits after the decimal point!

Example

Input:
5
2
0 0 0
0 0 0
4
0 0 0
0 0 0
100
2 -3 4
-4 5 6
100
2 -3 4
-4 5 7
1000
0 0 0
0 0 0

Output:
0.1666666667
0.0694444444
0.0001389381
0.0000000000
0.0000208505