

Starship

Problem code: HS09SHIP

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 (x_1, y_1, z_1) and you would like to reach (x_2, y_2, 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: $T < 30000$, $0 < n \leq 1000$. The absolute value of the x, y, z coordinates are smaller than 10^6 . There are **5** input sets.

Output

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: 520 0 00 0 040 0 00 0 01002 -3 4-4 5 61002 -3 4-4 5 710000 0 00 0 0Output: 0.166666666670.069444444440.00013893810.00000000000.0000208505
```

Scoring

For solving this problem you will score 10 points.

Added by: Robert Gerbicz

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Time limit: 1s-6s

Source
limit: 50000B

Languages: SED C99 strict C++ 4.0.0-8 C++ 4.3.2 TCL SCALA NICE NEM PHP SCM guile LISP
sbcl LISP clisp ERL TECS TEXT DOC PDF PS PERL 6 JS

Resource: High School Programming League