

Contest Duration: 2025-08-30(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250830T2100&p1=248>) - 2025-08-30(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250830T2240&p1=248>) (local time) (100 minutes)

[Back to Home \(/home\)](/home)

[🏠 Top \(/contests/abc421\)](/contests/abc421)

[📋 Tasks \(/contests/abc421/tasks\)](/contests/abc421/tasks)

[❓ Clarifications \(/contests/abc421/clarifications\)](/contests/abc421/clarifications)

[📊 Results ▼](#)

[🏆 Standings \(/contests/abc421/standings\)](/contests/abc421/standings)

[🏆 Virtual Standings \(/contests/abc421/standings/virtual\)](/contests/abc421/standings/virtual)

[📖 Editorial \(/contests/abc421/editorial\)](/contests/abc421/editorial)

[💬 Discuss \(https://codeforces.com/blog/entry/145931\)](https://codeforces.com/blog/entry/145931)



E - Yacht

[Editorial \(/contests/abc421/tasks/abc421_e/editorial\)](/contests/abc421/tasks/abc421_e/editorial)



Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 475 points

Problem Statement

There are five six-sided dice. Each die has the numbers A_1, \dots, A_6 written on its faces, and each face appears with probability $\frac{1}{6}$.

You will play a single-player game using these dice with the following procedure:

1. Roll all five dice, observe the results, and **keep** any number (possibly zero) of dice.
2. Re-roll all dice that are not kept, observe the results, and additionally keep any number (possibly zero) of the re-rolled dice. **The dice kept in the previous step remain kept.**
3. Re-roll all dice that are not kept and observe the results.
4. Choose any number X . Let n be the number of dice among the five dice that show X .
The score of this game is nX points.

Find the expected value of the game score when you act to maximize the expected value of the game score.

Constraints

- A_i is an integer between 1 and 100, inclusive.

Input

The input is given from Standard Input in the following format:

A_1 A_2 A_3 A_4 A_5 A_6

Output

Print the answer. Your answer will be considered correct if the relative or absolute error from the true value is at most 10^{-5} .

Sample Input 1

Copy

1 2 3 4 5 6

Copy

Sample Output 1

Copy

14.6588633742

Copy

For example, the game may proceed as follows (not necessarily optimal):

1. Roll all five dice and get 3, 3, 1, 5, 6. Keep the two dice that show 3.
2. Re-roll the three dice that are not kept and get 6, 6, 2. Additionally keep the two dice that show 6.
3. Re-roll the one die that is not kept and get 4.
4. Choose $X = 6$. The dice show 3, 3, 6, 6, 4, so the number of dice showing 6 is 2, and the score of this game is 12.

In this case, the expected value when acting optimally is $\frac{143591196865}{9795520512} = 14.6588633742 \dots$

Sample Input 2

Copy

1 1 1 1 1 1

Copy

Sample Output 2

Copy

5.0000000000

Copy

The dice may have faces with the same value written on them.

2026-01-02 (Fri)
05:29:26 +11:00

Sample Input 3

[Copy](#)

31 41 59 26 53 58

[Copy](#)

Sample Output 3

[Copy](#)

159.8253021021

[Copy](#)

[/#telegram](#))

[url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fabc421%2Ftasks%2Fabc421_e%3Flang%3Den&title=E%20-](#)

[Rule \(/contests/abc421/rules\)](/contests/abc421/rules) [Glossary \(/contests/abc421/glossary\)](/contests/abc421/glossary)

[Terms of service \(/tos\)](/tos) [Privacy Policy \(/privacy\)](/privacy) [Information Protection Policy \(/personal\)](/personal) [Company \(/company\)](/company)

[FAQ \(/faq\)](/faq) [Contact \(/contact\)](/contact)

Copyright Since 2012 ©AtCoder Inc. (<http://atcoder.co.jp>) All rights reserved.