B - P(X or Y)

Editorial (/contests/abc407/tasks/abc407_b/editorial)

Time Limit: 2 sec / Memory Limit: 1024 MB

Score : 250 points

Problem Statement

Two dice, each with six faces $1, 2, 3, 4, 5, 6$, are rolled. Find the probability that at least one of the following two conditions holds:

- The sum of the two outcomes is at least X.
- The absolute difference of the two outcomes is at least Y.

Each face of each die is equally likely, and the two dice are independent.

Constraints

- $2 \leq X \leq 13$
- $0 \leq Y \leq 6$
- All input values are integers.

Input

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

```
X Y
```

Output

Output the probability that the two outcomes satisfy at least one of the two conditions. Your answer is accepted if its absolute error from the true value is at most 10^{-9}.

Sample Input 1

Copy

```
9 3
```

Copy

Sample Output 1

Copy

```
0.55555555555555555555555555555
```

Copy

Let (x, y) denote the event that the dice show x and y.

- The sum is at least 9 for $(3,6), (4,5), (4,6), (5,4), (5,5), (5,6), (6,3), (6,4), (6,5), (6,6)$.
- The difference is at least 3 for $(1,4), (1,5), (1,6), (2,5), (2,6), (3,6), (4,1), (5,1), (5,2), (6,1), (6,2), (6,3)$.

At least one of these conditions holds for the following 20 pairs:
$(1,4), (1,5), (1,6), (2,5), (2,6), (3,6), (4,1), (4,5), (4,6), (5,1), (5,2), (5,4), (5,5), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5), (6,6)$
.

Thus, the answer is $\frac{20}{36} = \frac{5}{9} = 0.5555555555\ldots$.

2025-05-24 (Sat)
15:30:40 -04:00

Because an absolute error of at most 10^{-9} is allowed, outputs such as `0.5555555565` or `0.55555555456789` are accepted.

Sample Input 2 Copy

```
13 6
```
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Sample Output 2 Copy

```
0
```
Copy

Neither the sum of two dice can be 13 or greater, nor can their difference be 6 or greater.

Thus, the answer is 0.

Sample Input 3 Copy

```
10 3
```
Copy

Sample Output 3 Copy

```
0.5
```
Copy

Language

Python (CPython 3.11.4)

Source Code

Open File | Customize | Toggle Editor | Auto Height

```
1
```

* at most 512 KiB
* Your source code will be saved as Main.*extension*.

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