Lazy Teacher

Task: The students in the Lab are unhappy with the workload. Some ask for more difficult tasks while others want easier exercises. To accommodate the students, you decide to let them vote on how the next exercise sheet should look like. Towards this end you select a group of students that will form a committee of size k and vote on the matter. Every member of this committee has to either vote increase or decrease the workload.

What the students do not know is that you have already prepared the next tasks and because you are lazy, you prefer to not change anything about it. So the best outcome for you is if the vote ends in a tie. You know that every student $i \in [n]$ will vote to increase the workload with probability p_i and vote to decrease workload with probability $(1 - p_i)$.

Choose a subset of the students $S \subseteq N$ with $|S| = k$ such that the probability to get a tie is maximized.

Input: The first line contains the number of candidates n and the size of the committee k. Here, k is guaranteed to be even. After that, each line contains the probability p as a floating point number that the corresponding candidate votes to increase the workload.

Output: For each test case, the output is a single line containing the maximal probability to achieve a tie rounded to 3 decimal places.

Sample Input 1

```
4 2
0.4
0.8
0.3
0.5
```

Sample Output 1:

```
0.62
```

Sample Input 2

```
8 4
0.1
0.3
0.9
0.6
0.5
0.3
0.9
0.5
```

Sample Output 2:

```
0.572
```