A - ABC/ARC

Time Limit: 2 sec / Memory Limit: 256 MiB

Score : 100 points

Problem Statement

Smeke has decided to participate in AtCoder Beginner Contest (ABC) if his current rating is less than 1200, and participate in AtCoder Regular Contest (ARC) otherwise.

You are given Smeke's current rating, x. Print `ABC` if Smeke will participate in ABC, and print `ARC` otherwise.

Constraints

- $1 \leqq x \leqq 3{,}000$
- x is an integer.

Input

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

```
x
```

Output

Print the answer.

Sample Input 1 Copy

```
1000
```

Sample Output 1 Copy

```
ABC
```

Smeke's current rating is less than 1200, thus the output should be `ABC`.

Sample Input 2 Copy

```
2000
```

Sample Output 2

Copy

```
ARC
```

Smeke's current rating is not less than 1200, thus the output should be `ARC`.

B - A to Z String

Time Limit: 2 sec / Memory Limit: 256 MiB

Score : 200 points

Problem Statement

Snuke has decided to construct a string that starts with `A` and ends with `Z`, by taking out a substring of a string s (that is, a consecutive part of s).

Find the greatest length of the string Snuke can construct. Here, the test set guarantees that there always exists a substring of s that starts with `A` and ends with `Z`.

Constraints

- $1 \leqq |s| \leqq 200{,}000$
- s consists of uppercase English letters.
- There exists a substring of s that starts with `A` and ends with `Z`.

Input

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

```
s
```

Output

Print the answer.

Sample Input 1 Copy

```
QWERTYASDFZXCV
```

Sample Output 1 Copy

```
5
```

By taking out the seventh through eleventh characters, it is possible to construct `ASDFZ`, which starts with `A` and ends with `Z`.

Sample Input 2 Copy

```
ZABCZ
```

Sample Output 2 Copy

```
4
```

Sample Input 3 Copy

```
HASFJGHOGAKZZFEGA
```

Sample Output 3 Copy

```
12
```

C - X: Yet Another Die Game

Time Limit: 2 sec / Memory Limit: 256 MiB

Score : 300 points

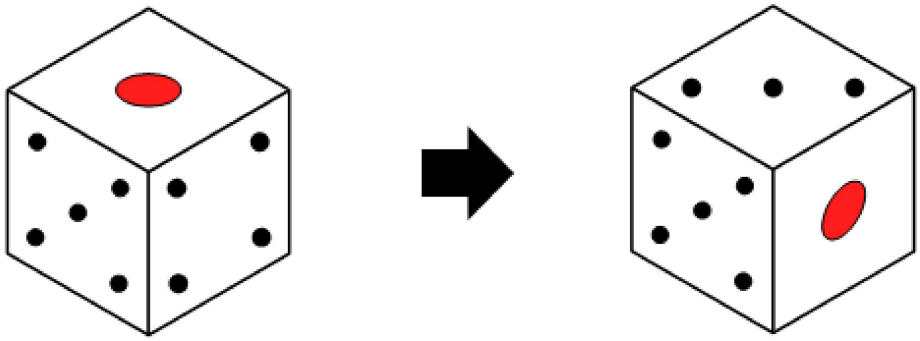
Problem Statement

Snuke has decided to play with a six-sided die. Each of its six sides shows an integer 1 through 6, and two numbers on opposite sides always add up to 7.

Snuke will first put the die on the table with an arbitrary side facing upward, then repeatedly perform the following operation:

- Operation: Rotate the die 90° toward one of the following directions: left, right, front (the die will come closer) and back (the die will go farther). Then, obtain y points where y is the number written in the side facing upward.

For example, let us consider the situation where the side showing 1 faces upward, the near side shows 5 and the right side shows 4, as illustrated in the figure. If the die is rotated toward the right as shown in the figure, the side showing 3 will face upward. Besides, the side showing 4 will face upward if the die is rotated toward the left, the side showing 2 will face upward if the die is rotated toward the front, and the side showing 5 will face upward if the die is rotated toward the back.



Find the minimum number of operation Snuke needs to perform in order to score at least x points in total.

Constraints

- $1 \leqq x \leqq 10^{15}$
- x is an integer.

Input

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

x

Output

Print the answer.

Sample Input 1 Copy

```
7
```

Sample Output 1 Copy

```
2
```

Sample Input 2 Copy

```
149696127901
```

Sample Output 2 Copy

```
27217477801
```

D - Card Eater

Time Limit: 2 sec / Memory Limit: 256 MiB

Score : 400 points

Problem Statement

Snuke has decided to play a game using cards. He has a deck consisting of N cards. On the i-th card from the top, an integer A_i is written.

He will perform the operation described below zero or more times, so that the values written on the remaining cards will be pairwise distinct. Find the maximum possible number of remaining cards. Here, N is odd, which guarantees that at least one card can be kept.

Operation: Take out three arbitrary cards from the deck. Among those three cards, eat two: one with the largest value, and another with the smallest value. Then, return the remaining one card to the deck.

Constraints

- $3 \leqq N \leqq 10^5$
- N is odd.
- $1 \leqq A_i \leqq 10^5$
- A_i is an integer.

Input

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

$$
\begin{array}{l}
N \\
A_1 \quad A_2 \quad A_3 \quad \ldots \quad A_N
\end{array}
$$

Output

Print the answer.

Sample Input 1 Copy

```
5
1 2 1 3 7
```

Sample Output 1 Copy

```
3
```

One optimal solution is to perform the operation once, taking out two cards with 1 and one card with 2. One card with 1 and another with 2 will be eaten, and the remaining card with 1 will be returned to deck. Then, the values written on the remaining cards in the deck will be pairwise distinct: 1, 3 and 7.

Sample Input 2 Copy

```
15
1 3 5 2 1 3 2 8 8 6 2 6 11 1 1
```

Sample Output 2 Copy

```
7
```