

lazing Riff

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

Xinyan's the name, an' rock 'n' roll's the game — and I'm the only one who plays it in Liyue Harbor. Been thinking about staging concerts elsewhere lately, but... Hmm... Well, word is that you've been all over the place, Traveler. So, what say you sign me up for your world tour? Anywhere's good!

—Xinyan

Xinyan is fond of passionate music.

Let's use string consisted of only lowercase Latin letters to represent each piece of music. If the corresponding string is palindromic, Xinyan thinks it's boring; Otherwise, Xinyan thinks it's exciting.

Recall that a **string is palindromic if it reads the same backward as forward**. For example, **madam** and **racecar** are palindromic, when **direct** and **test** are non-palindromic.

For each piece of music, if we delete 0 or more letter(s) from the beginning of the corresponding string, and delete 0 or more letter(s) from the ending of the corresponding string, then the non-empty result is called a **part** of this music. In addition, we define the length of a part as the length of its corresponding string.

For given music, Xinyan wants to calculate the length of its shortest exciting part, or point out that there is no exciting part.

Input

The only line contains a string s ($1 \leq |s| \leq 100$), consisted of lower Latin letters only, and means the given music.

Output

Output the length of the shortest exciting part in the given music. If there is no exciting part, output -1.

Examples

standard input	standard output
a	-1
aaa	-1
aabaa	2

Note

In the first example and the second example, there is no exciting part.

In the third example, there are some exciting parts like **ab** or **ba**, whose length is 2. It can be shown that these two parts are the shortest exciting parts.

Rock 'n' roll is a relatively unpopular style of music in Liyue, having recently been brought over from Fontaine. Xinyan, however, loves the sound — and she's slowly but surely amassing a fanbase of her own as she performs throughout Liyue Harbor.