# Cyclic Binary String

You have been given a binary string $s$ of length $n$, you can cyclically shift this string any number of times. For example, consecutively applying cyclic shift operation to the binary string "$1011010$" you will get "$0101101$", "$1010110$" and so on.

Let $X$ be the decimal representation of string $s$. Then find the greatest power of $2$ with which $X$ can be divisible with, if it can be divisible with arbitrarily large power print "$-1$".

For example if string $s$ ="$1001$", we can cyclically shift $1$ time to get string "$1100$" which in decimal is $12$ and is divisible with $2^2$, hence the answer is $2$.

**Input Format**

The first and only line of input contains string $s$.

**Constraints**

- $1 \leq n \leq 10^5$

**Output Format**

Print a single integer denoting the maximum power of $2$ by which $X$ can be divisible with.

**Sample Input 0**

```
0011
```

**Sample Output 0**

```
2
```

**Explanation 0**

We can cyclically shift the string $2$ times to get "$1100$" which is divisible by $2^2$ hence the answer is $2$.

**Sample Input 1**

```
111
```

**Sample Output 1**

```
0
```

**Explanation 1**

The string will remain same even after any number of cyclic shifts, and the given string in decimal is $7$, which is divisible by $2^0$ hence the answer is $0$.