Prime Cut 2

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

points: 100 · problem code: primecut2 · author: caneToadCoad

Prime Cut 2

Any integer larger than 1 can be expressed as the sum of 1 or more non-distinct prime numbers. For example, 18 can be expressed as 5 + 13, whilst 17 is already a sum of prime numbers.

For a given integer, n, find the minimum number of prime numbers that would be need to make a sum of n.

Input format

One integer is given, n. $(1 < n < 1e4)$

Output format

Output the minimum number of prime numbers which would be required to have n as their sum.

Examples

Input

```
18
```

Output

```
2
```

18 can be expressed as 5 + 13

Input

```
17
```

Output

```
1
```

As 17 is prime, only 17 is required to express it as a sum of prime numbers

Input

```
35
```

Output

```
3
```

35 can be expressed as 2 + 2 + 31.