

6216 Hypotenuse Numbers

The Pythagorean theorem states that the square of the length of the hypotenuse of a right triangle is equal to the sum of the squares of the other two legs of the triangle. This can be represented by the equation:

$$Z^2 = X^2 + Y^2$$

where Z is the length of the hypotenuse of the triangle and X and Y are the lengths of the other legs. If we restrict X , Y , and Z to be integers greater than zero, which numbers can be the length of a hypotenuse of a right triangle?

A famous result from number theory states that an integer can be the length of a hypotenuse of a right triangle if and only if it has at least one prime factor of the form $4k + 1$, where k is an integer greater than zero. Your team is to write a program that will test integers to determine if they are possible hypotenuse lengths.

Input

Your program is to read a series of lines terminated by end of file. Each line will consist of an integer Z , $0 < Z \leq 2,147,483,647$.

Output

For each line in the input your program is to print a line containing the input number, a single space, and either 'yes' if the number can be a hypotenuse or 'no' if it cannot be. No whitespace is to appear before the number or between the answer and the newline.

Sample Input

```
5
6
7
10
2147483647
2147483645
2147483642
2147483627
1927738275
1927738291
```

Sample Output

```
5 yes
6 no
7 no
10 yes
2147483647 no
2147483645 yes
2147483642 no
```

2147483627 yes
1927738275 yes
1927738291 no