ABC Conjecture

Time limit: 3 seconds

The ABC conjecture (also known as the Oesterlé–Masser conjecture) is a famous conjecture in number theory, first proposed by Joseph Oesterlé and David Masser. It is formally stated as follows:

Figure 1: Shinichi Mochizuki

> For every positive real number ε, there are only finitely many positive integer triples (a, b, c) such that
>
> 1. a and b are relatively prime;
> 2. $a + b = c$; and
> 3. $c > \mathrm{rad}(abc)^{1+\varepsilon}$,
>
> where
> $$\mathrm{rad}(n) = \prod_{\substack{p \mid n \\ p \in \text{Prime}}} p$$
> is the product of all distinct prime divisors of n.

Shinichi Mochizuki claimed to have proven this conjecture in August 2012. Later, Mochizuki's claimed proof was announced to be published in *Publications of the Research Institute for Mathematical Sciences* (RIMS), a journal of which Mochizuki is the chief editor.

Spike is a great fan of number theory and wanted to prove the ABC conjecture as well. However, due to his inability, he turned to work on a weaker version of the ABC conjecture, which is formally stated as follows:

> Given a positive integer c, determine if there exists positive integers a, b, such that $a + b = c$ and $\mathrm{rad}(abc) < c$.

Note that in the original ABC conjecture, the positive integers a and b are required to be relatively prime. However, as Spike is solving an easier version of the problem, this requirement is removed.

Input

The first line of input contains one integer T $(1 \le T \le 10)$, the number of test cases.

The next lines contain description of the t test cases. Each test case contains one line, including an integer c $(1 \le c \le 10^{18})$.

Output

For each test case, if there exist two positive integers a, b satisfying $a + b = c$ and $\mathrm{rad}(abc) < c$, then output `yes` in a line, otherwise output `no` instead.

Example

standard input	standard output
3 4 18 30	yes yes no

Note

For the first test case, we have $2 + 2 = 4$ and $\mathrm{rad}(2 \times 2 \times 4) = 2 < 4$.

For the second test case, we have $6 + 12 = 18$ and $\mathrm{rad}(6 \times 12 \times 18) = 6 < 18$.

For the third test case, there's no solution.