

BOI 97 - Factorial

For a positive integer number N , find all positive integer numbers X (if any such number exists) with the property that the number $1*2*3*...*X$ has exactly N decimal digits. Assume that N is at most 150,000.

Input

A single line which contains a positive integer number denoting the number N .

Output

The first line should contain the string "NO", if such a number does not exist. Otherwise, the first line should contain a positive integer denoting how many X numbers exist. Then print all the X numbers, one number per line.

Example

Input:

5

Output:

1

8