

PROBLEM 3: Palindrome Numbers

File Names

Source File: pal.c, pal.pas, etc.
Input File: pal.in
Output File: pal.out

Statement of the Problem

We say that a number is a **palindrome** if it is the same when read from left to right or from right to left. For example, the number 75457 is a palindrome.
Of course, the property depends on the basis in which the number is represented. The number 17 is not a palindrome in base 10, but its representation in base 2 (10001) is a palindrome. The objective of this problem is to verify if a set of given numbers are palindromes in any basis from 2 to 16.

Input Format

Several integer numbers comprise the input. Each number $0 < n < 50000$ is given in decimal basis in a separate line. The input ends with a zero.

Output Format

Your program must print the message **Number i is palindrome in basis** where i is the given number, followed by the basis where the representation of the number is a palindrome. If the number is not a palindrome in any basis between 2 and 16, your program must print the message **Number i is not palindrome**.

Sample Input

17
19
0

Sample Output

Number 17 is palindrome in basis 2 4 16
Number 19 is not palindrome