Problem 12: Polite Numbers

20 minutes, 200 points
Filename: prob12 *(e.g. prob12.c, prob12.cpp, prob12.java, prob12.py2, prob12.py3)*

Description
In number theory, a polite number is a positive integer that can be written as the sum of two or more consecutive positive integers. Other positive integers that **cannot** be written as the sum of two or more consecutive positive integers are **not polite**.

Examples

14 = 2 + 3 + 4 + 5, so 14 is polite
15 = 7 + 8, so 15 is polite
16 is not polite (no sum of two or more consecutive numbers equal 16)
17 = 8 + 9, so 17 is polite
18 = 5 + 6 + 7, so 18 is polite
19 = 9 + 10, so 19 is polite

Each line of input will include a single integer that needs to be tested to determine whether or not it is a polite number. Each input value will be a positive integer less than or equal to 1000. The last line of input will contain a zero. No other lines will contain a zero. When you receive a zero value, you can stop processing the input.

Each line of output should contain the original integer, followed by " is polite" or " is not polite".

Sample Input

```
14
15
16
17
18
19
0
```

Sample Output

```
14 is polite
15 is polite
16 is not polite
17 is polite
18 is polite
19 is polite
```

Hints
A simple (but inefficient) "brute force" approach to this problem would be to loop through each possible combination of sums, checking to see if the sum matches the input. If no combinations of sums equal the input, the number is not polite. The scoring system will accept a program that uses this approach, as long as your program does not run for more than 5 seconds on the scoring server.

https://en.wikipedia.org/wiki/Polite_number
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