**Musical Theme**

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| **Time Limit:** 1000MS |  | **Memory Limit:** 30000K |
|  |  |  |

**Description**

A musical melody is represented as a sequence of N (1<=N<=20000)notes that are integers in the range 1..88, each representing a key on the piano. It is unfortunate but true that this representation of melodies ignores the notion of musical timing; but, this programming task is about notes and not timings.   
Many composers structure their music around a repeating &qout;theme&qout;, which, being a subsequence of an entire melody, is a sequence of integers in our representation. A subsequence of a melody is a theme if it:

* is at least five notes long
* appears (potentially transposed -- see below) again somewhere else in the piece of music
* is disjoint from (i.e., non-overlapping with) at least one of its other appearance(s)

Transposed means that a constant positive or negative value is added to every note value in the theme subsequence.   
Given a melody, compute the length (number of notes) of the longest theme.   
One second time limit for this problem's solutions!

**Input**

The input contains several test cases. The first line of each test case contains the integer N. The following n integers represent the sequence of notes.   
The last test case is followed by one zero.

**Output**

For each test case, the output file should contain a single line with a single integer that represents the length of the longest theme. If there are no themes, output 0.

**Sample Input**

30

25 27 30 34 39 45 52 60 69 79 69 60 52 45 39 34 30 26 22 18

82 78 74 70 66 67 64 60 65 80

0

**Sample Output**

5

**Hint**

Use scanf instead of cin to reduce the read time.

**Source**

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