

Senior Division

Digital Deletions

This game is from the book *On Numbers and Games* by John Conway (Academic Press, 1976).

PROBLEM: Given a sequence of digits, modify the sequence by:

1. Deleting a zero, if any, and all the digits to the left of it
2. Changing a digit to a value less than that digit (by some set of rules). No negatives allowed.

In a real game the player who removes the last digit loses.

For this program, given the sequence, remove the zeros, if any, and all the digits to their left. Then find the median of the digits. If it is not an integer, truncate the decimal part. If there is more than one integer equal to this value use the right most occurrence. If the truncated median is not one of the sequence digits, use the largest digit in the sequence that is smaller than the median. If it is even subtract 2 from it or if it is odd subtract 1 from it. Repeat the application of the rules to the sequence. How many moves were required to delete the sequence? Two examples are shown below:

1 3 4 0 2 3 4	1 2 0 3 4 5 6
2 3 4	3 4 5 6
2 2 4	3 2 5 6
2 0 4	2 2 5 6
4	2 0 5 6
2	5 6
0	4 6
EMPTY	2 6
	0 6
	6
	4
	2
	0
	EMPTY

INPUT: There will be 5 lines of input. Each input will consist of a sequence of positive integers. The first integer will tell how many integers are in the sequence that follows.

OUTPUT: Print the number of moves required to delete all the digits.

SAMPLE INPUT

1. 7, 1, 3, 4, 0, 2, 3, 4
2. 7, 1, 2, 0, 3, 4, 5, 6
3. 5, 5, 0, 6, 0, 4

SAMPLE OUTPUT

1. 7
2. 13
3. 4