Call for Help (numpad)

Edoardo was playing with a new device when suddenly he pushed the wrong button and he was transformed into an ant! In order to try and reverse the effect of the device, Edoardo is now trying to call the helpline of the company that made it.

The toll-free phone number is written on the back of the device, and is formed by N digits. Edoardo is initially located on top of his phone numpad, specifically on the number "0".

At any moment, Edoardo can choose to either:

- Jump on the spot. This will *press* the number where he's located.
- Jump in the direction of some adjacent number: this will change his location but will *not press* the number after "landing". He can move only in 4 directions: up, down, left, right.

Compute how many jumps he will need to perform to dial the whole number.

> ☞ Among the attachments of this task you may find a template file `numpad.*` with a sample incomplete implementation.

Input

The first and only line contains a string S formed by N characters. The string represents the phone number Edoardo needs to call.

Output

You need to write a single line with an integer: the number of jumps Edoardo needs to perform to dial the whole number.

Constraints

- $1 \leq N \leq 1\,000\,000$.
- Characters of S are always numeric digits (from `0` to `9`).

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (30 points) The helpline number is always formed by only two digits: 0 and 8.

– **Subtask 3** (20 points) $N \leq 10$.

– **Subtask 4** (20 points) $N \leq 10\,000$.

– **Subtask 5** (30 points) No additional limitations.

Examples

input	output
088	4
01	6
010	11

Explanation

In the **first sample case** Edoardo can first jump on the spot, then jump from 0 to 8, then jump on the spot, and finally jump again on the spot.

In the **second sample case** Edoardo can jump on the spot, then jump from 0 to 8, then from 8 to 5, then from 5 to 4, then from 4 to 1, then jump on the spot.