

## PROBLEM E

## CHECK DIGITS

10 POINTS

Professor Wilkerson was teaching a class on computer security. As an exercise he had each of his students generate a check digit for their student ID, and then get other students to confirm that it was correct.



The algorithm he gave to the students was as follows:

- multiply the rightmost digit by 2, the next digit by 3 and so on and then sum the numbers generated
- divide this sum by 11 and then subtract the remainder from 11
- if this number is in the range 1 to 9, it is appended to the right of the student ID
- else if this number is 11, append 0 to the right of the student ID
- else if the number is 10, the ID is rejected and the student has to ask the professor for a temporary ID!

To check that the ID with its added check digit is valid, multiply the rightmost digit by 1, the next by 2 and so on, summing the numbers as before. If the total is exactly divisible by 11, the new ID is valid.

### Input

Input will be a series of numbers, one per line. Each number will contain at least 10 and no more than 15 decimal digits. The final line will be a single 0 – this marks the end of input and should not be processed.

### Output

For each line of input, follow the above algorithm to calculate the required check sum. Output a single line containing the original ID, followed by the symbols ‘->’, followed either by the ID with the added check sum, or the word “rejected” as appropriate.

### Sample Input

```
276320156824553
643479110054
6434791122
0
```

### Output for Sample Input

```
276320156824553 -> 2763201568245531
643479110054 -> 6434791100544
6434791122 -> rejected
```