

568 Just the Facts

The expression $N!$, read as “ N factorial,” denotes the product of the first N positive integers, where N is nonnegative. So, for example,

N	$N!$
0	1
1	1
2	2
3	6
4	24
5	120
10	3628800

For this problem, you are to write a program that can compute the last non-zero digit of any factorial for ($0 \leq N \leq 10000$). For example, if your program is asked to compute the last nonzero digit of $5!$, your program should produce “2” because $5! = 120$, and 2 is the last nonzero digit of 120.

Input

Input to the program is a series of nonnegative integers not exceeding 10000, each on its own line with no other letters, digits or spaces. For each integer N , you should read the value and compute the last nonzero digit of $N!$.

Output

For each integer input, the program should print exactly one line of output. Each line of output should contain the value N , right-justified in columns 1 through 5 with leading blanks, not leading zeroes. Columns 6 - 9 must contain ‘ -> ’ (space hyphen greater space). Column 10 must contain the single last non-zero digit of $N!$.

Sample Input

```
1
2
26
125
3125
9999
```

Sample Output

```
1 -> 1
 2 -> 2
26 -> 4
125 -> 8
3125 -> 2
9999 -> 8
```