

4890 Aronson

Aronson's sequence a_k is a sequence of integers defined by the sentence “ t is the first, fourth, eleventh, ... letter of this sentence.”, where the ... are filled in appropriately so that the sentence makes sense. The first few values are 1, 4, 11, 16, 24, 29, 33, 35, 39, ...

Note the non-letter characters and spaces are not considered in the formulation of the sequence. When $k \leq 100000$, it turns out that $a_k \leq 1000000$.

To formulate the sequence, you must be able to write the ordinal numbers in English. The ordinal numbers are first, second, third, ..., while the cardinal numbers are one, two, three, It is easiest to define the ordinals in terms of the cardinals, so we describe these first.

A cardinal number less than twenty is written directly from the first two columns of **Table 1** (3 three, 17 seventeen, etc.). A cardinal number greater than or equal to twenty, but less than one hundred is written as the tens part, along with a nonzero ones part (40 forty, 56 fifty six, etc). A cardinal number greater than or equal to one hundred, but less than one thousand, is written as the hundreds part, along with a nonzero remainder (100 one hundred, 117 one hundred seventeen, 640 six hundred forty, 999 nine hundred ninety nine). A cardinal number greater than or equal to one thousand, but less than one million, is written as the thousands part, along with a nonzero remainder (12345 twelve thousand three hundred forty five). An ordinal number is written as a cardinal number, but with the last word ordinalized using the columns three and four of **Table 1**.

Some example ordinal numbers are 3^{rd} third, 56^{th} fifty sixth, 100^{th} one hundredth, and 12345^{th} twelve thousand three hundred forty fifth.

Input

The input consists of a number of cases. Each case is specified by a positive integer k on one line ($1 \leq k \leq 100000$). The sequence of k values will be non-decreasing. The input is terminated by a line containing a single '0'.

Output

For each k , print the value of a_k on one line. The values of a_k will be at most 1000000.

Sample Input

```
1
3
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n	cardinal	n th	ordinal
1	one	1 st	first
2	two	2 nd	second
3	three	3 rd	third
4	four	4 th	fourth
5	five	5 th	fifth
6	six	6 th	sixth
7	seven	7 th	seventh
8	eight	8 th	eighth
9	nine	9 th	ninth
10	ten	10 th	tenth
11	eleven	11 th	eleventh
12	twelve	12 th	twelfth
13	thirteen	13 th	thirteenth
14	fourteen	14 th	fourteenth
15	fifteen	15 th	fifteenth
16	sixteen	16 th	sixteenth
17	seventeen	17 th	seventeenth
18	eighteen	18 th	eighteenth
19	nineteen	19 th	nineteenth
20	twenty	20 th	twentieth
30	thirty	30 th	thirtieth
40	forty	40 th	fortieth
50	fifty	50 th	fiftieth
60	sixty	60 th	sixtieth
70	seventy	70 th	seventieth
80	eighty	80 th	eightieth
90	ninety	90 th	ninetieth
100	hundred	100 th	hundredth
1000	thousand	1000 th	thousandth

Table 1: Translation table.

9
0

Sample Output

1
11
39