Unreadable Dates (dates)

A friend of Luca is particularly interested in history: he is writing his final thesis to graduate in this subject. During his researches, he is writing an appendix listing all the dates of death of the soldiers who fought in a certain battle.

He has already found an old book which is perfectly suited to accomplish the task, but he has been unlucky: he is unable to read from the yellowed pages the separator (`'/'`) between days, months and years of the dates.

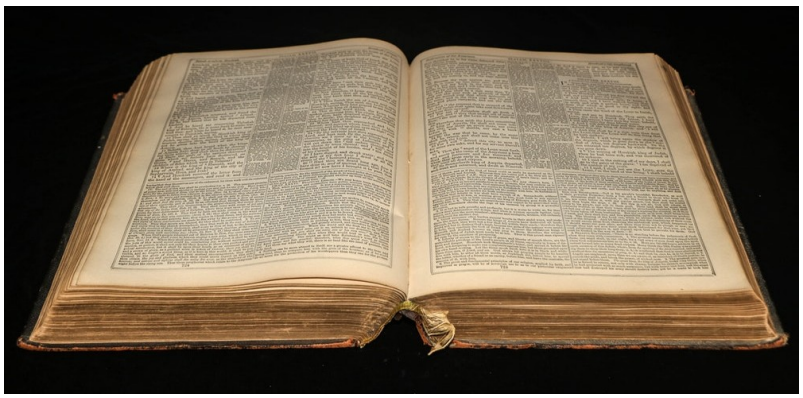

Figure 1: The old book which *almost* perfectly satisfies Luca's friend.

You know that:

- The day is a number between 1 and 31 (except for shorter months), optionally preceded by a zero when it is a single digit (i.e., `05` and `5` are both possible).
- The month is a number between 1 and 12, optionally preceded by a zero when it is a single digit. All months have 31 days except April, June, September and November which have 30 days and February which has 28 days.
- The year is between 1900 and 1999 and may be written with two digits (the last two), three digits (the last three) or with all four digits.

Help Luca's friend, who is unsure how to proceed. Given a string `date`, exactly as read from the book without separators, how many possible different valid dates may be interpreted from it?

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

Input

The first and only line contains the string of digits `date`.

Output

You need to write a single line with an integer: the number of different dates in which the input string can be interpreted.

Constraints

- `date` has a length between 4 and 8 digits (extremes included).
- We are not interested in considering leap years: February has always 28 days.

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** (25 points) `date` is always 8 digits long and can represent only dates which have a month with 31 days.

– **Subtask 3** (15 points) `date` is always 8 digits long.

– **Subtask 4** (15 points) `date` can represent only dates which have always both the day and the month written with two digits each.

– **Subtask 5** (40 points) No additional limitations.

Examples

input	output
10119	2
21121999	1
311399	0

Explanation

In the **first sample case** the date can be interpreted as `10/1/19` or as `1/1/19` (with a leading zero in front of the month).

In the **second sample case** the date can be interpred only as `21/12/1999`.

In the **third sample case** there is no valid date which can be deduced from the input string.