

3738 Happy Birthday to You, and You, and You!

Many people recognize the “birthday paradox.” It states that given a group of 23 or more randomly chosen persons, the probability that at least two of them will have the same birthday is more than 50%. Actually it isn’t a paradox, but is so named because it contradicts what most people would intuitively expect.

But what is the probability that at least three persons in a group of N randomly chosen persons share the same birthday?

For simplicity we will assume that there are exactly 365 days in a year, and require that your answer be correct only within one tenth of a percent. For example, with 88 people in a group, the probability that at least three of these people will have the same birthday is 51.1 percent (with the result rounded to one fractional digit). Your answer could be any of 51.0 percent, 51.1 percent, or 51.2 percent and still be considered correct.

Input

There may be multiple cases. The input for each case is a line containing the integer N , the size of the group. N will be no larger than 1000.

Input for the last case is followed by a line containing ‘-1’.

Output

For each case, display the case number (starting with 1) and the probability that at least three persons in a group of size N share the same birthday. Your result should be displayed as a percentage rounded to one fractional digit. Separate the output for consecutive cases by a blank line. Your output should look very similar to that shown in the samples below.

Sample Input

```
23
88
-1
```

Sample Output

```
Case 1. 1.3 percent

Case 2. 51.1 percent
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