Problem of the Week

Problem D

Leaps and Bounds

Most people believe a year is equivalent to 365 days. In actuality, it is slightly more than 365 days. To account for this extra time, we use leap years which are years containing one extra day. The following rule is used to determine if a year is a leap year:

A year is a leap year if it is

- divisible by four, and
- not divisible by 100, unless it is also divisible by 400.

For example; 2018 is not a leap year, since 2018 is not divisible by 4. However, 2016 was a leap year, since 2016 is divisible by 4, but not 100.

The second part of the rule affects century years.

For example; the century years 2000 and 2400 are leap years, since they are both divisible by 400. The century years 2100, 2200, and 2300 are not leap years, since they are not divisible by 400.

A year greater than 2000 is chosen at random, what is the probability that it is a leap year?