Every day is a holiday revisited

[Award] **9 pts**

[Category] **Math**

On planet J, a year lasts for *D* days. Holidays are defined by the two following rules.

1. At the beginning of the reign of the current Emperor, his birthday is declared a holiday from that year onwards.
2. If both the day before and after a day *d* are holidays, then *d* also becomes a holiday.

Initially there are no holidays. Let *f*(*n*, *d*) be the number of methods such that all the days of the year are holidays after exactly *d* days, with the year lasts for n days.

You are given *f*(4, 2) = 4, *f*(10, 5) = 240, *f*(50, 100) mod 1000000007 = 263154905.

Find f(1000, 1012) mod 1000000007.

Thanks to **baihacker** for the idea.

[Answer] **862503565**