A "Prime Date" is a date which, when written in yyyymmdd form, is a prime number, e.g. 27 Sept 2014, because 20140927 is a prime number. It is the next prime date after HHC 2014.

A "Prime Date Pair" (hereafter PDP) are two prime dates which are consecutive calendar dates, e.g. 19500331 (31 March 1950) and 19500401 (1 April 1950). Note that, unlike so-called "prime pairs" which differ by 2 (e.g. 11 and 13), PDP's differ by 1 calendar day. A "PDP date" is any date which belongs to a PDP.

Programming Contest: Write a program which, given any year between 1583 and 9999, outputs all the PDP dates in that year (and only in that year) in yyyymmdd format, or mm.ddyyyy format, or dd.mmyyyy format, whichever you prefer.

Notes:

1. The winners are the 3 shortest programs: 1 in RPN, 1 in RPL, and 1 in PPL. RPN program size will be counted in steps. RPL and PPL program size will be counted in bytes. This process is somewhat imprecise, so the judge's decision will be final.

2. Some models do not contain native primality testing functions. Therefore, programs for these models may call an external primality testing subroutine (e.g. NP in the PPC ROM, or any other program or function in the machine), to help minimize the size of your program. The purpose of this rule is to make it a fair contest, because the size of the external primality tester will not be included in the calculation of the size of your program. However, the primality testing subroutine must ONLY test primality. If you hide chunks of your main program in the primality testing program, you will be disqualified. Obviously.

3. Speed is irrelevant; elegantly efficient code is the goal of this contest. However, all programs must return the correct answers to qualify, so programs that run too long to be judged will be disqualified.

4. As always, any program which violates the goal of elegant code packing (according to the sole discretion of the contest judge) will be disqualified. For example, embedding commands in a string, then executing the string, just to save a few bytes, is the antithesis of elegance. Bonus points for making the judge gasp in awe. Negative points for making the judge gasp in horror.

5. The judge reserves the right to input any years from 1583 through 9999. An already-existing complete list of PDP's from 1583 to 9999 will be used for judging.

1. Easy: Prove that there cannot be a PDT (Prime Date Triple).

2. Harder: If everybody lived forever after being born, what percent of the population would never have prime birthdays?

3. Difficult: Some years contain an odd number of PDP dates, e.g. 1978 (Dec 31st only) and 1979 (Jan 1st, Jan 31st, and Feb 1st only). Prove that there cannot be 4 consecutive calendar years which all contain exactly an odd number of PDP dates.