

Week 46 (7/28/03)

The birthday problem

- (a) How many people must be in a room in order for the probability to be greater than $1/2$ that at least two of them have the same birthday? (By “same birthday”, we mean the same day of the year; the year may differ.) Ignore leap years.
- (b) Assume there is some large number, N , of days in a year. How many people are now necessary for the odds to favor a common birthday? Equivalently, assuming a normal 365-day year, how many people are required for the probability to be greater than $1/2$ that at least two of them were born in the same hour on the same date? Or in the same minute of the same hour on the same date? Neglect terms in your answer that are of subleading order in N .