

General Mathematics and Computational Science I

Exercise 13

October 25, 2005

1. Suppose you meet n random people (excluding yourself).
 - (a) What is the probability that at least one of them is born on the same day of the year as you?
 - (b) How large should n be so that this happens with a probability of at least $\frac{1}{2}$?
2. Prove the *arithmetic-geometric-mean inequality* for $n = 3$.

Note: This is Problem 9 from Ivanov, p. 48, which contains a sketch of a proof. The task here is to write out a complete self-contained solution without reference to Ivanov.