

Homework due **Oct 6 Mon** in class. Problems with * are recommended but not required.

- Quiz 1: Problems in Quiz 1 that you did not find the correct answers. Hand in your new solutions with your Quiz 1 answer sheet together.
- Reading: Textbook¹ Chapter 4.1.
- Hand-in Problems: You may give your final results in terms of factorials and combinatorial numbers. No need to use calculator.
Textbook Chapter 4.1, Exercises 4, 6, 18, 22, 32, 34.
(Hint for Exercise 34: how many permutations of A, B, C, D ? By ‘returned in a random manner’, it means that all these are equally likely to be the return order.)
- Not hand-in Problems: (choose one from the following two sets)
 1. Textbook Chapter 4.1, Exercises 3, 7, 9, 15, 19, 39, 43. We will work some of these problems out during the lectures.
 2. SOA/CAS Exam P/1 Sample Questions², 17, 19, 20 – 30.
- ♠ An interview problem (for fun): Given a standard die, one can design an algorithm to generate a random variable X with $\mathbb{P}(X = 1) = 1/6$ and $\mathbb{P}(X = 0) = 5/6$ (this is a Bernoulli random variable with parameter $1/6$). For example, throw the die once and set $X = 1$ if seeing a ‘one’, and $X = 0$ otherwise.
Design an algorithm to generate a Bernoulli random variable with parameter $1/7$.

¹*Introduction to Probability, Second Revised Edition*, Grinstead and Snell. See textbook website for solutions of odd-number exercises.

²SOA/CAS Exam P/1 Sample Questions. See course website for samples and solutions.