Instructions for the Week Beginning 24th September 2007

1 Reading

Read through sections 1.3 and 1.4

2 Exercises

From 1.3: (1), 3, (5), 7, 15, 18
From 1.4: 3, (5), 7, (9), 13, 17, (19)

A twenty minute quiz will be given on 28th September, and will be based on the questions not in parentheses.

3 Problems

A full write up of your working on the following problems is due by 5:00pm on 1st October.

3.1 Free Cell probabilities

What is the probability of there being 2 aces in a single column at the start of a FreeCell game? What about 3 and 4 aces in a single column? Conduct an experiment that validates your findings.

3.2 The difficulty of picking numbers at random

Read Example 1.1–11 on page 8. Calculate the exact percentage, within a randomly selected list, of neighbouring digits that would have the same value, and the percentage of neighbours whose value differs by 1 (and do NOT count 0 and 9 as differing by 1). What is the probability of a list of 40 randomly choosen digits containing no same value neighbours? Have Mathematica select 40 digits at random, and ask a friend not in this class to do the same. Do both these lists match your expectations for randomly selected lists?