Problem Set 5 **SE4I03 Fall 2003**

1. Read section 8.1
2. All the exercises in section 8.2 (8.2.1–5)
3. 8.4.1–6 and 8.4.8
4. Design a Turing machine which computes the function $f(x) = 3x + 5$. Assume that the input x is given in binary (and the output is also in binary). On input x, your Turing machine should compute $3x + 5$, and place the head on the first symbol of the output, and halt.

   For example, on input `101` (5) the output should be `10100` (20) (surrounded by blanks).
5. 9.1.1–3
6. 9.2.1–6
7. 9.3.1–7
8. 9.4.1–3
9. 9.5.1,2