PMAT 4340 – Combinatorial Analysis Assignment #7
Fall 2008

Instructions

- Answer each question completely; justify your answers.
- This assignment is due at: 5:00 pm on Wednesday November 12th.

1. How many r-digit quaternary sequences are there in which the total number of 0's and 1's is odd?
2. Exercise 6.4.14.
3. Find an ordinary generating function $g(x) = \sum_{r \geqslant 0} a_r x^r$ such that
   (a) $a_r = 5r^2$
   (b) $a_r = 8 - 3r$
   (c) $a_r = r(r-1)(r-2)\cdots(r-27)$
4. Find an ordinary generating function $g(x) = \sum_{r \geqslant 0} a_r x^r$ such that
   (a) $a_r = r^2 - \frac{3r}{7}$
   (b) $a_r = (r+2)(r+1)(r)\cdots(r-66)$
5. Exercise 6.5.2.
6. Exercise 6.5.6.
7. Evaluate $\sum_{i=0}^{n} i^3$.
8. Evaluate $\sum_{i=0}^{n} \big(4 - i(i+1)(i+2)\big)$.
9. Exercise 7.1.6.
10. Exercise 7.1.12.
11. Exercise 7.1.20.