PMAT 4340 – Combinatorial Analysis — Assignment #6
Fall 2003

Instructions

- Answer each question completely; justify your answers.
- This assignment is due at: 3:00 pm on Wednesday November 5th.

1. How many ways are there to make an r-arrangement of pennies, nickels, and dimes with at least 3 pennies and an even number of dimes? (treat coins of the same value as identical)

2. How many r-digit quaternary sequences are there in which the total number of 0's and 1's is odd?

3. Exercise 6.4.12.

4. Find an ordinary generating function $G(x) = \sum_{r \geq 0} a_r x^r$ such that

   (a) $a_r = 7r^2$

   (b) $a_r = 5 - 3r$

   (c) $a_r = r(r-1)(r-2)\cdots(r-17)$

5. Evaluate $\sum_{i=0}^{r} i^3$.

6. Evaluate $\sum_{i=0}^{r} 4 - i(i+1)(i+2)$.

7. Exercise 7.1.2.

8. Exercise 7.1.10.

9. Exercise 7.1.20.