MATH 583, Dr. Z., Problem Set #1, Mon., Feb. 10, 2003.


Theory:

1)

a) Write all the partitions of $n$, in rev. lex. order, $(L_n)$ for $1 \leq n \leq 5$.

b) Write all the partitions of $n$, in lex. order, $L_n'$, for $1 \leq n \leq 5$.

c) For $1 \leq n \leq 5$, compute $L_n \cap L_n'$, and compare it to $N_n$.

2) Write down, explicitely, $e_i(x_1, x_2, x_3)$ and $h_i(x_1, x_2, x_3)$ for $i = 0, 1, 2, 3, 4$.

3) For $1 \leq n \leq 3$, express $e_{\lambda}$ in terms of $m_\mu$’s for all partitions $\lambda$ of $n = 3$. By solving for the $m_\mu$’s in terms of the $e_{\lambda}$’s, express $m_\lambda$ in terms of $e_\mu$’s.

Maple

1) Write the Maple syntax to express the sequence $\{i^3\}$, $1 \leq i \leq n$, using the seq function.

2) Write a nested do statement that prints, for every day of the year, the 365 sentences:

‘Today is Jan. 1, 2003’;

...

‘Today is Dec. 31, 2003’;

3) Give examples of while and if statements.