HOMEWORK 3
DISCRETE MATHEMATICS II
DUE 01-28

(1) Consider the following strange objects:

an n-permutation of an n-element set, where the order of the *first* r elements matters, but the order of the remaining elements *does not* matter.

Let's call them r-blobs.

(a) Suppose that $n = 5$ and $r = 3$. Give an example of two different 5-permutations that correspond to the same 3-blob, and of two different 5-permutations that do not correspond to the same 3-blob.

(b) In general, how many n-permutations of an n-element set correspond to a given r-blob?

(c) What is the number of r-blobs of an n-element set?

(d) Give a combinatorial proof that the number of r-blobs of an n-element set is the same as the number of r-permutations of an n-element set.

- **Four** book problems: #6.1.64, 69 (2 problems); #6.2.3, 4, 9 (3 problems).