1.3. Circular Permutations
1.4. Combinations

California State University Sacramento - Math 101

Homework Assignment 4

1) Example 1.3.2

2) Example 1.3.3

3) Problem 6 on page 51

4) Example 1.4.1

5) Example 1.4.2

Example 1.3.2. In how many ways can 5 boys and 3 girls be seated around a table if

(i) there is no restriction?

(ii) boy B_1 and girl G_1 are not adjacent?

(iii) no girls are adjacent?

Example 1.3.3. Find the number of ways to seat n married couples around a table in each of the following cases:

(i) Men and women alternate;

(ii) Every woman is next to her husband.

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6. Find the number of *odd* integers between 3000 and 8000 in which no digit is repeated.

Example 1.4.1. Prove that

$$\binom{n}{r} = \binom{n-1}{r-1} + \binom{n-1}{r}, \tag{1.4.3}$$

where $n, r \in \mathbf{N}$ with $r \leq n$.

Example 1.4.2. By Example 1.1.4, there are 2^7 binary sequences of length 7. How many such sequences are there which contain 3 0's and 4 1's?