Homework Assignment 5

1) Problem 2(iv) on page 50

2) Problem 15 on page 51

3) Example 1.4.3 parts (i), (ii), and (iii)

4) Problem 2(iii) on page 50

5) Problem 20 on page 52

6) Problem 22 on page 52

7) Problem 23 on page 52

2. There are 12 students in a party. Five of them are girls. In how many ways can these 12 students be arranged in a row if

(iv) between two particular boys A and B, there are no boys but exactly 3 girls?

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15. In a group of 15 students, 5 of them are female. If exactly 3 female students are to be selected, in how many ways can 9 students be chosen from the group

(i) to form a committee?

(ii) to take up 9 different posts in a committee?

Example 1.4.3. **In how many ways can a committee of 5 be formed from a group of 11 people consisting of 4 teachers and 7 students if**

(i) there is no restriction in the selection?

(ii) the committee must include exactly 2 teachers?

(iii) the committee must include at least 3 teachers?

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2. There are 12 students in a party. Five of them are girls. In how many ways can these 12 students be arranged in a row if

(iii) no 2 girls are adjacent?

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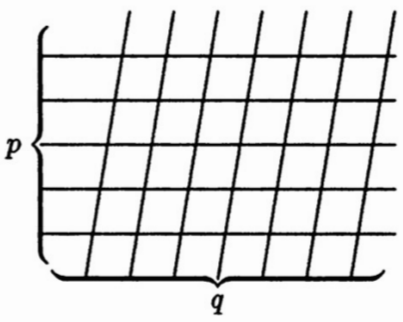
20. In a group of 15 students, 3 of them are female. If at least one female student is to be selected, in how many ways can 7 students be chosen from the group

(i) to form a committee?

(ii) to take up 7 different posts in a committee?

21. Find the number of $(m+n)$-digit binary sequences with m 0's and n 1's such that no two 1's are adjacent, where $n \leq m+1$.

22. Two sets of parallel lines with p and q lines each are shown in the following diagram:



Find the number of parallelograms formed by the lines?