SDS 321 Worksheet 5 (Counting)

1. There is a basket of fruit containing 3 apples and there are five girls who want to eat one fruit. How many ways are there to give three of the five girls one fruit each and leave two of them without a fruit to eat?

2. There is a basket of fruit containing an apple, a banana and an orange, and there are five girls who want to eat one fruit. How many ways are there to give three of the five girls one fruit each and leave two of them without a fruit to eat?

3. An hexadecimal number is a number whose digits can take sixteen different values: either one of the ten numbers from 0 to 9, or one of the six letters from A to F. How many different 8-digit hexadecimal numbers are there, if an hexadecimal number is allowed to begin with any number of zeros?

4. From a group of 5 women and 7 men, how many different committees consisting of 2 women and 3 men can be formed?

5. In #4, what if two of the men are feuding and refuse to serve on the committee together?

6. How many different arrangements can be made from the letters: (a) FLUKE (b) PROPOSE? The arrangements don't need to be real words.

7. A police department in a small city consists of 10 officers. If the department policy is to have 5 of the officers patrolling the streets, 2 of them working full-time at the station, and 3 of them on reserve at the station, how many different divisions of the 10 officers into the 3 groups are possible?

8. Ten children are to be divided into an A team and a B team of 5 each. The A team will play in one league and the B team in another league. How many different divisions are possible?

9. In order to play a game of basketball, 10 children at a playground divide themselves into two teams of 5 each. How many different divisions are possible?

10. Consider a group of 20 people. If everyone shakes hands with everyone else, how many handshakes take place?

11. In how many ways can 8 people be seated in a row if (a) there are no restrictions, (b) persons A and B must sit together, (c) A and B cannot sit next to each other?