7.2 Exercise Set

Rule A Questions

1. Solve $P(n, 2) = 72$ using algebra.

2. A 120-room hotel has reservations from 6 guests for 6 different rooms. In how many ways can the rooms be assigned?

3. How many ways can the batting order of a 9-member softball team be listed?

4. How many different groups of four letters can be made from the letters A, B, C, D, E and F if the letters can only be used once?

5. How many ways can 3 boys and 3 girls sit in a row if:

a) there are no restrictions on where they sit in the row?

b) all the boys sit together, and all the girls sit together?

c) only the boys must sit together, the girls choosing the other seats?

d) boys and girls alternate?

6. Six people line up for a ride on a toboggan, but only two of the six are allowed to sit in the front position. How many different ways can they be seated?

7. A person must deliver packages to 6 different locations. If the order is randomly determined, how many routes are possible if the exact opposite route does not count as a different route?

8. How many ways can 5 people A, B, C, D and E sit in a row if A must be to the left of B but not necessarily next to each other?

9. How many ways can 5 people A, B, C, D and E sit in a row if A and B **cannot** sit next to each other?

10. How many ways can 5 couples sit in a row in a movie theatre if all couples must sit together?

11. How many ways can 5 people be seated around a round table so that the relative arrangements of the people in the group is different?

Rule B Questions

12. How many different 10-letter "words" can be made using the letters from the word STATISTICS?

13. A football team plays a 10-game schedule. How many ways can the schedule end with 5 wins, 3 losses and 2 ties?

14. Nine people apply for a job in which 2 people are selected to work in an office and 3 in the workyard. In how many different ways can the selection be made?

15. How many different codes can be made using the letters A, A, B, B, B, C, C, C, D, D if the code must contain all 10 letters?

16. How many ways can 5 apple trees, 4 pear trees, and 3 cherry trees be arranged along a fence line?

17. In how many ways can 30 teachers be assigned to 6 schools, with each school receiving an equal number of teachers?

18. **a)** How many different arrangements are there using all the letters in the word ECONOMICS?

b) How many of these arrangements begin with the letter C?

c) How many of these arrangements do not begin with a C?

d) How many of these arrangements have the two C's together?

19. In how many ways can 12 jurors and 3 alternate jurors be selected from a group of 25 prospective jurors?

20. Point B is 4 blocks east, and 5 blocks north of point A. Point C is 7 blocks north, and 4 blocks east of point B. How many paths are there from point A to point C going north and east only?

21. How many ways can 6 people work at 3 different offices if 2 people are in each office and 2 individuals refuse to work together?