COMBINATIONS (from several sets)

1. In how many ways can 3 math books and 2 science books be selected from a set of 12 math books and 9 science books, all different?

2. In how many ways can a committee be formed containing three girls and two boys from a group containing ten girls and twelve boys?

3. In how many ways can a person select a path from A to B and a path from B to C if there are nine paths to chose from A to B and five from B to C?

4. In how many ways can a student select 4 short answer and three long answer questions on a test from 6 short answer and 5 long answer?

5. In how many ways can a ten card be dealt so that it contains exactly five hearts and 5 spades?

6. How many 12 card hands can be dealt that contain exactly 8 spades?

7. How many 13 card hands can be dealt that containing exactly 3 queens, 2 kings, 2 aces and 3 nines?

8. In how many ways can a person select a pair of pants from six pants, a pair of shoes from 3 pairs of shoes, and a hat from 10 hats?

9. In how many ways can you select 3 consonants and 4 vowels from the letters in the alphabet?

10. In how many ways can you select 2 even and three odd digits from the digits 0, 1, 2, ... , 9?

11. In how many ways can you select 2 vowels and 2 consonants from the word "numbers"?

12. In how many ways can a male leading role, a female leading role, 2 supporting males and 3 supporting females be selected from a group containing nine females and 12 males?

13. A bridge hand has thirteen cards of each suit. How many thirteen-card hands having exactly eight clubs can be dealt? How many hands having exactly 2 hearts, 5 clubs, 4 spades and 2 diamonds are there?

14. From a group of 6 men and eight women, how many committees of 3 men and 2 woman can be formed?

15. A bag contains 4 red, 6 white and five blue marbles. How many ways can 2 red, 3 white and 3 blue be chosen?

16. In how many ways can you select three letters from the word "study" and two letters from the word "charge"?