1. A convention will endorse one of six candidates for governor, one of six candidates for lieutenant governor, and one of three candidates for state treasurer. How many slates of endorsed candidates are possible?

2. A full dinner at a restaurant consists of one of 4 appetizers, one of 5 main courses, and one of 12 desserts. How many different complete dinners are offered?

3. How many ways are there to fill out the answer sheet to a six-question multiple-choice exam if each question can be answered A, B, or C?

4. A social security number has nine digits. How many different social security numbers are possible?

5. Each letter in the words, ' GO FLY KITES' is written on a separate piece of paper and thrown into a hat. If one letter is chosen at a time,

    (a) how many different five-letter 'words' can be formed?

    (b) how many of these 'words' begin with a vowel?

    (c) how many begin with a consonant and end with a vowel?

6. How many different 4-digit numbers between 5000 and 9000 can be formed using the digits 3, 4, 5, 6, 7, 8, and 9?

7. A code is constructed so that each word has exactly 4 letters. A word cannot start with a vowel or end with a consonant. How many different code words can be formed?

8. The access code for a car's security system consists of five digits. The first digit cannot be zero and the last digit must be odd. How many different codes are available?

9. A pizza shop offers a plain cheese pizza with any or all (or none) of the following toppings: hamburger, onion, peppers, sausage, anchovies, extra cheese, mushrooms and bacon. How many different pizzas can the pizza claim to offer?

10. In the computer language BASIC, the name of a variable must be either a single letter or a letter followed by a 1-digit number. How many different variable names are possible?

11. How many different license plates are there consisting of two different letters followed by a 1- or 2-digit number?

12. How many ways can a president, vice-president and treasurer be chosen from a group of 7 people?

13. A special awards ceremony is going to have 5 guest speakers. In how many different orders may they be chosen to speak?

14. How many ways are there to fill out the answer sheet to a five-question multiple-choice exam if each question is answered true or false?

15. How many ways are there to fill out the answer sheet to a ten-question exam if the first five questions are true or false and the last five questions are answered A, B, or C?

16. (a) In how many ways can the King and Queen of the senior prom be chosen if the senior class contains 50 males and 35 females?

    (b) In how many ways can senior class president and treasurer be elected?

17. How many different 4-letter radio station call letters can be made if

    (a) the first letter must be K or W and no letter may be repeated?

    (b) repeats are allowed but the first letter must be K or W?

    (c) the first letter is K or W, there are no repeats, and the last letter is R?

18. Each letter is the words, COLD WINTER, is written on a separate piece of paper and thrown into a hat. If one letter is chosen at a time

    (a) how many different 5-letter 'words' can be formed?

    (b) how many of these 'words' end in a vowel?

    (c) how many of these 'words' begin with a vowel and end with a consonant?

19. How many different license plates are there consisting of two different letters followed by any 3-digit number?

20. How many different 3-digit numbers between 400 and 700 can be formed using the digits, 1, 2, 4, 6, 8, and 9?

21. Consider all 5-digit numbers that do not begin with zero (for example, 12345 is one such number, 04321 is not).

    (a) How many such numbers are there?

    (b) How many of them contain only the digits 2, 4, 6, or 8?

    (c) How many of them begin and end with an odd digit?

    (d) How many of them are even?

22. There are six seats available in a van. In how many ways can six people be seated if only three can drive?

23. At Wendy's Old Fashioned Hamburger Restaurant, a hamburger can be ordered with any combination of 8 toppings: cheese, lettuce, tomatoes, onions, mustard, pickles, mayonnaise and ketchup. How many different ways are there to order a hamburger at Wendy's?

24. A ship has 5 different signal flags. How many different signals are possible by sending up one, two, or three of the flags?

25. A restaurant offers 3 appetizers, 4 main dishes, and 10 desserts. A person can order a complete meal of appetizer, main course, and dessert; a dinner consisting of main course and either an appetizer or dessert; or just a main course. How many different meals are possible?